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ORIGINAL COMMUNICATIONS.

ARTICLE I.

THE EFFECT OF NOISES UPON CERTAIN FORMS OF DEAFNESS.

By GEORGE HAWLEY, M. D., *Chicago, late House Surgeon at Golden Square Throat and Chest Hospital, London, England, Assistant Surgeon to the Illinois Eye and Ear Infirmary.*

[*Read before the Chicago Medical Society, June*, 1884.]

More than two hundred years ago Dr. Thomas Willis, of Amsterdam, described a certain form of deafness in which hearing was improved by noise enabling persons to distinguish tones and sentences which at other times would be unheard. This symptom, bearing the name of Paracussis Willisiana, has been accepted by most aurists, but no satisfactory explanation as to its cause has been advanced.

While Politzer, von Troeltsch and others consider that it depends upon some change in the position of the ossicles or membrana tympani, many, like Krama, take different views and believe that it is due to a stimulating of the auditory nerve, thus forcing it to a more healthy action. Experience favors the theory that the middle ear is the seat of this symptom,

that some change is brought about by the constant noise which restores the hearing for the time being. What this change is, is still open to discussion. It may be of interest to relate the following case which came under my observation while house surgeon at the Golden Square Hospital, London. Mrs. H., aged 30, had for the last five years suffered with marked deafness in both ears. Common conversation was heard with difficulty except when any loud noise was present. At that time the hearing apparently was greatly improved. A watch could be heard on the left side only upon contact, and on the right at a distance of about two inches. The tuning-fork showed no trouble of the acoustic nerve, but clearly indicated some disturbance in the middle ear. The drum-head was normal as to tension, color, etc., while perfect movability existed in the malleo-incudal joint. Nothing indicated anchylosis of of any of the ossicles. The appearance of the throat was healthy and the eustachian tubes both patent. This is a good example of this form of deafness in which the symptom of hearing better in a noise manifests itself.

Roosa, however, mentions two cases where the drum-head was more or less destroyed and still, noises improved the hearing. The ossicles in both ears were intact. Politzer, in his work on aural surgery, states that this improvement is seen only in middle ear affections of an adhesive or sclerotic character, and regards it as a most unfavorable symptom for satisfactory prognosis. Roosa, on the contrary, states that it is found in many forms of ear affections, and does not necessarily forbid one from expecting favorable results from treatment. In his article on "The Effects of Noises upon Diseased and Healthy Ears," he says, "I have known two cases where this symptom occurred in patients who regained their hearing perfectly. While the symptom frequently accompanies incurable

diseases of the middle ear, I believe it is a very frequent symptom in sub-acute cases where both ears are affected. Of course it would not be observed in disease of one ear only."

Whatever may be the cause of this symptom, we are justified, I think, in believing that certain pathological changes are then present in the middle ear, which will be found at no other time. If this be true, in what does the change consist?

Willis considered the change brought about by the action of strong wave tones upon a relaxed membrana tympani to be the cause of this symptom. As long as the drum-head is in a relaxed condition it refuses to respond fully to wave impressions. It is no longer a perfect sound-conductor until its tension is restored. Noises, by forcing air against the membrane, press it inward, restore its tension, and hearing is improved until the pressure is removed, when deafness returns as bad as ever. If this improvement was found only in such cases as he describes, we might accept his theory as correct; but, unfortunately, as I have already stated, it is present with no change whatsoever in the drum-head. Therefore, in such cases, at least, this improvement in hearing is due to some other cause. We have in the middle ear two other elastic membranes, one of which takes as important a part in conveying wave impressions as the membrana tympani. Any change by disease or injury would be fully as disastrous to normal hearing; I mean the membrane of the foramen ovale.

When we consider the extraordinary fine shades of vibrations transmitted by this membrane to the fluids of the labyrinth, are we not justified in expecting that any loss of accuracy and precision on the part of the transmitting apparatus at this point will cause a corresponding loss of hearing power. According to Riemann the excursions of the stapes in the fainter tones are so small as to escape detection even with the high-

est power of the microscope. Therefore a corresponding sensitiveness on the part of the membrane must necessarily be present in order to appreciate and transmit these vibrations. Thus we see that any change at the oval window which tends to hinder the passage of vibrations to the fluids in the inner ear must cause diminution in hearing. If, then, the membrane from any cause becomes relaxed, and loses the power of responding to vibrations, it acts no longer as a sound conductor but as a damper to any wave impressions.

This is demonstrated in the case of relaxed drum-heads where inflation improves the hearing. Not only must this elastic plate (so called by Politzer) be capable of responding fully to any wave impulse, but it must also bear a certain relation to the foot of the stapes. I mean by this that a due amount of pressure must be applied by the stirrup and a sufficient resistance be offered in every ear that possesses perfect hearing. If this is lost, deafness is the result. Chronic suppurative inflammation of the middle ear, with destruction of drum-head, incus and malleus, is a proof of the correctness of this statement. Hearing is here frequently improved by a false drum-head, which presses the loose stapes against the membrane of the foramen ovale, thereby restoring the relative positions of the parts. In a relaxed membrane the pressure of the stapes is wanting, due to an absence of resistance in the diseased membrane itself.

Until we find some means of restoring this needed resistance, deafness remains. Thus through the loss of elasticity in this membrane we lose two important factors for perfect hearing. First, this membrane, like the membrana tympani, while relaxed, refuses to act as a conductor of sound by not responding to vibrations given it. And second, the proper relation between it and the stapes is destroyed, the necessary

pressure and resistance being absent. We find in the case of an atrophied drum-head that hearing is frequently improved by inflating the middle ear, which restores the tension to this membrane by forcing it outwards. One might suppose that such inflation would likewise restore lost hearing if due to a relaxed membrane at the ovale window. Unfortunately, the same act which might restore to this membrane its proper tension, forces it inwards as well, and thus separates the stapes from it.

Though the membrane may be in a proper condition for receiving and transmitting wave sounds, the stapes, from the absence of any pressure applied by it to this membrane, will be unable to perform its duty—there will be more or less obstruction to the passage of sound at this point.

Whatever, then, restores the hearing in these cases. must not only renew the tension of the membrane, but maintain as well the relative position of health between it and the stapes.

This, in my opinion, can only be accomplished by some influence brought to bear upon the membrane and stapes from outside the middle ear.

If now we consider the effect of wave impulses upon the membranes and ossicles, we can, I think, understand how a loud and continuous noise might improve the hearing where deafness is due to such pathological changes as herein described.

The air, set in motion by this noise, strikes upon and pushes the drum-head and ossicles inwards; this crowds the air in the middle ear against the ovale window, and the membrane, if relaxed, is made tense by this pressure. At the same time, the relative position between it and the stapes, as to pressure, etc., is also restored, and hearing for the time is therefore improved.

This noise, which would confuse one with normal hearing, is absorbed, so to speak, in removing the cause of deafness.

In case of perforated drum-head the vibrating air acts directly upon the diseased membrane and stapes.

Von Troeltsch mentions a case where a magistrate so afflicted improved his hearing by pressing a bit of stick against the drum-head. Allen, also, in his work on Aural Surgery, states, while speaking of this symptom, that the hearing power was increased in a patient who presented herself with marked destruction of the drum-head by pressing cotton against the ossicles. Another is also noted where a large perforation existed. Here, before and after healing of the perforation, hearing was improved by pressure.

Though these three cases do not in themselves place this theory beyond dispute, it may still make it worthy of consideration.

It may encourage us to further investigations, which, perchance, may result in establishing beyond a doubt the cause of improved hearing in certain forms of deafness, by noise.

ARTICLE II.

CELLOIDIN AS AN EMBEDDING MASS. *By* DR. BOERNE BETTMAN, *Chicago.*

[*Read before the State Microscopical Society, June* 13, 1884.]

Not very long ago I exhibited to the members of this society an improved microtome and samples of embedding masses. Since then I have had occasion to employ a preparation but lately made known to the scientific world, which surpasses in every respect those heretofore in vogue. This preparation is known as Celloidin mass.

Celloidin is the purest gun cotton or pyroxylin. It is manufactured by Mr. G. Schering, of Berlin. He has succeeded in making, by a patented method, an article free from all precipitating organic substances, which, in distinction from all other gun cotton, he calls by this name. Its use in the form of gelatinous plates is, according to the manufacturer's statements, free from danger, it being inexplosive. The mass in question was first employed by Prof. Otto Becker, of Heidelberg, who pays a high tribute to its excellent qualities in his classical work, "The Pathology of the Lens."

It is prepared in the following manner: Take of alcohol and sulphuric ether equal parts, mix and add sufficient celloidin to form a jelly-like substance. The preparation must be kept in an air-tight vessel. The specimen to be embedded should have undergone the usual hardening process, in Müller's fluid and alcohol; it is then stained in bulk by carmine, hæmatoxylin, or any other tincture. After having taken up sufficient coloring matter, which is usually accomplished in 24 hours, the specimen should be thorougly cleansed by immersing it in running water. Then it is placed in absolute alcohol 24 hours longer. It is now ready for the celloidin bath, where it is permitted to remain at

least 24 hours, in order that the mass may permeate the tissues thoroughly. If the cover of the jar containing the embedding mass is a close fitting one, preventing the evaporation of the ether and alcohol, the specimen may remain for an indefinite period.

The final step is the pasting of the preparation on a cork. A few moments' exposure to the air will suffice to fasten the specimen sufficiently firmly to allow of its immersion in methylated spirit, sp. gr. 82. It should be exposed to the hardening action of alcohol from 15 to 24 hours before being cut.

In the majority of cases it is desirable to mount the section encased in the celloidin. This necessitates a slight deviation from the course ordinarily pursued. Oleum origanum, or bergamot oil must be substituted for clove oil. Bergamot oil is preferable to the former. If origanum oil be employed, the preparation should be transported rapidly ; an exposure longer than one minute to this oil will produce visible changes in the celloidin, it becomes cloudy, and impairs the value of the cut. In other respects the method of treating the sections is the usual one.

A few moments' exposure to clove oil dissolves the mass.

The advantages of this preparation over others are manifold. The material employed is clean, experience forms no factor in its preparation, which is facile and rapid. It permeates the tissues thoroughly, and fixes the various parts in position, thus preserving their relationship. It is perfectly transparent, amorphous, and, since the preparation to be embedded can be stained beforehand, it remains invisible to the eye, and does not detract from the usefulness and appearance of the section.

113 Adams Street.

ARTICLE III.

CLINICAL AND PATHOLOGICAL REPORTS OF CASES OF INSANITY. *By* S. V. CLEVENGER, M.D., *Special Pathologist Cook County Insane Asylum.*

	Males.	Females.	Total.
Present June 1, 1883	227	273	500
Admitted during year	224	223	447
Total under observation	451	496	947
Of whom died	56	66	122
Of whom were discharged	86	95	181
Present June 1, 1884	309	335	644

From October to February the death rate was less than during the other parts of the year.

The Psychoses of those admitted during the year ending June 1, 1884, were as follows:

	Males.	Females.	Total.
Alcoholic Insanity	34	9	43
Circular "	2		2
Epileptic "	15	12	27
Hebephrenia	7	4	11
Hysterical Insanity		8	8
Hypomania		1	1
Imbecility	3	3	6
Katatonia	5	2	7
Mania	54	49	103
Melancholia	42	59	101
Paranoia	7	9	16
Paretic Dementia	11	2	13
Primary Confusional Insanity	4	6	10
Recurrent Alcoholic	1		1
" Mania	6	8	14

	Males.	Females.	Total.
Recurrent Melancholia	2	5	7
Rheumatic Insanity	1	1	2
Secondary Confusional Insanity	2	4	6
Senile Dementia	7	18	25
Stuporous Insanity	5	1	6
Syphilitic "	2	1	3
Traumatic "	4		4
Transitory Frenzy		1	1
Terminal Dementia	10	15	25
Typhomania		2	2
Undiagnosed. No Psychosis apparent		3	3
	224	223	447

One of the Paretics admitted was a negro.

The greater number of those discharged were upon admission maniacal, melancholiac or alcoholic, 28 of the first had been detained from 3 months to 3 years; 16 of them were discharged within 3 months of their admission.

Of the melancholiac, males, 19; females, 27; one-half remained less than 6 months, the others various periods, up to 2 years.

The alcoholics recovered most rapidly, often within two weeks. They also die soonest of any of the forms of insanity.

The discharges from among those admitted during the year were as follows:

	Under 3 mos.		Under 6 mos.		Under 1 year.	
	M.	F.	M.	F.	M.	F.
Alcoholic Insanity	9	4		1		
Epileptic "	3	1	2	1		
Hebephrenia			2		1	
Hysterical Insanity		3		1		1
Imbecility		2				

	Under 3 mos.		Under 6 mos.		Under 1 year.	
	M.	F.	M.	F.	M.	F.
Mania	10	9	1	2	1	
Melancholia	3	10	10	3	1	1
Paranoia	1	2	1	3		
Paretic Dementia			1			
PrimaryConfusional Insanity	2	2				
Recurrent Mania		2	2	1		
" Melancholia		1		2		1
" Alcoholic					1	
Rheumatic Insanity		1				
Senile Dementia		3				
Stuporous Insanity		1			1	
Terminal Dementia	1	1		1		
Totals	29	42	19	15	5	3

Total males, 53; females, 60.

The Terminal and Senile Dements, Imbeciles and Epileptics were merely taken home by their friends, unimproved. The Alcoholics made good recoveries, but there is no predicting when they would relapse through a return to their bad habits. I believe that the poisonous adulteration in liquors complicate this form of insanity, which is a true toxæmia in the beginning, and an organic disease later.

The hysterical for the most part never fully recover. They are inherently defective, but discipline will benefit them to a greater or less extent.

Mania and Melancholia are more hopeful forms, and doubtless one-half of those discharged may never have recurrences.

Paranoia is balanced between imbecility and hysteria, so far as recovery is concerned. A few cases under proper circumstances never relapse.

Paretic Dementia is, so far, absolutely hopeless, though I

believe very much more could be done for this kind of lunacy than has been thought possible in the past. During remissions paretics are often discharged.

The Primary Confusionals make the best recoveries and the most sudden. The stuporous slowly emerge, but in my opinion the predisposition to the latter form is in an abnormality of the circulation.

The Rheumatic and Syphilitic forms in their incipiency are the most curable psychoses.

The deaths this year among those who had been admitted before June 1, 1883, were mainly Terminal Dements, who among the males were maniacs and among the females melancholiacs after a residence in the asylum varying from a month to six years.

There are few differences in the ages to which the chronic insane live as they pass toward terminal dementia, but the paretics seldom pass the third year of their asylum residence alive. We have two paretics who have lived here over four years, and both are cases which began with locomotor ataxia. I have my doubts as to this so-called ascending paresis being correctly named. There are many differences between the insanity associated with this neurosis and the ordinary paretic dementia. Other asylum officials would do a service to medicine if they would note such cases apart, especially with reference to their differing in length of life from the genuine form.

Those who died from among the patients admitted after June 1, 1883, survived after admission as follows:

	Under 3 mos.		Under 6 mos.		Under 1 year.	
	M.	F.	M.	F.	M.	F.
Alcoholic Insanity.....	6					
Circular "	1					
Epileptic "		1			1	
Mania.....	5	3			1	

	Under 3 mos.		Under 6 mos.		Under 1 year.	
	M.	F.	M.	F.	M.	F.
Melancholia		9		2		2
Paranoia						1
Paretic Dementia	2	1			1	
Senile Dementia		2	1			
Stuporous Insanity		1				
Terminal Dementia	1	2	1		1	
Typhomania		1				
Totals	15	20	2	2	3	4

Total males, 20; females, 26.

Of those admitted during the year thus, 10 per cent. died in that year, and 25 per cent. were discharged, of whom one-fifth probably permanently recovered, the other 20 per cent. may return to this or some other asylum or remain at home unrecovered, but out of the 65 per cent who remained to swell the resident list, more will die or be discharged in succeeding years, so our estimates concern the events of this year alone, and have nothing to do with ultimate results.

The immediate cause of death of the insane is often difficult if not impossible to discover, and the omnibus "exhaustion" from the psychosis is unavoidably used in assigning a cause for death.

Cardiac failure, either through trophic changes in the heart itself or the pneumogastrics, is a common cause of death among the insane. Gradual or sudden dyspnœa or œdema ending in anasarca are prodromata of final illnesses.

Phthisis pulmonalis ended two melancholiacs, one of whom was a lactational case. It also was the cause of death in one case of mania in puerpero, and in three cases of simple mania. I found fatty degeneration of the heart in post-mortem examination of one paranoiac, one epileptic and one simple maniac.

One case of mania, which had made a good recovery from the mental trouble, died from typhoid pneumonia pending his discharge. That disease cut short the career of one paretic, and another of the same psychosis died of the pneumonic invasion which has been noted by alienists as so common an accompaniment of that form of insanity.

Anasarca concluded one case of hebephrenia, one of senile dementia, one of melancholia and one of epilepsy. One paretic dement died from facial erysipelas. Dysentery was the final sickness of one melancholiac and one alcoholic insane. Hemiplegia and stupor preceded the death of one senile dement, a condition always imminent where degenerate, as atheromatous, arteries exist. The same disorder was the forerunner of death in one paretic dement. One maniac was paraplegic just before he died. Two female melancholiacs emaciated to an extreme and gradually passed away from the effects of innutrition. One epileptic insane had a large steatoma in his brain, as reported in May last. He is the one mentioned as having died from fatty degeneration of the heart.

One maniac died from the rupture of a hæmatoma in the dura near the superior longitudinal sinus into the left paracentral gyrus of the cerebrum.

The brains of the typhomaniacs were dropsical and difficult to preserve for microscopical examination. Those of terminal dements were uniformly shrunken and with decided increase of the outer neuroglia layer, with atrophy of the nerve cells. In some the convolutions were shrunken and the fissures gaped apart, especially upon the left side of the brain. One case of imbecility in paretic dementia in a female had in addition to the usual lesions of paresis a warped cerebellum and distorted medulla. The left cerebrum was under weight in every case examined.

In chronic cases, where there has been exaltation to a great degree, extravasations from the smaller arteries were abundant, particularly along both sides of the superior longitudinal sinus in the exterior dura.

In a few cases hæmatoma auris was found as noted in reports of individuals, and always it was the left ear affected.

Female Case No. 341, now living here, is the only case of right hæmatoma auris I have seen, and the other ear subsequently became similarly affected, making it double. One small arachnoid cyst with serous contents was found in the cerebellum of a simple melancholiac, and a blood cyst in the base of the cerebrum of one secondary confusional from mania.

The melancholiac brains have been found to be very pale, but otherwise as not exhibiting any remarkable change from normal. Most cases of melancholia seem due to depressed blood conditions and the agitated forms toxæmic. One case of melancholia agitata was accompanied with Bright's disease, and I ascribe the mental condition to the toxic circulatory, notwithstanding the comparative rarity of such cases.

Cerebral pathologists are familiar with the leucocytic exudate into the arachnoid which covers the brain with a film of a creamy color. This, with thickening of the leptomeninges, I have noted in most cases of mania and its terminal conditions. In typhomania this is excessive.

As to the causes of the different psychoses, I have too many notes to be able to utilize them in this article. Predisposition has very much to do with the form the insanity will assume under similar causes. For instance, traumatism may cause dementia, melancholia, mania or paranoia, according to the inherited disposition of the individual and the nature of the lesion. Frontal head injuries accompany, if they have not directly

caused, many cases of paranoia without other apparent cause. Slight moral causes often precipitate paranoia where there was an inherited disposition toward mental weakness. Alcoholism preceded many cases of simple mania and a few cases of primary confusional, and it is an undoubted cause of the alcoholic form, without any other factor operative, though it is conceivable that an inherited predisposition to insanity would require less of the poison to establish it. Fright will cause epilepsy in one and melancholia in another. Katatonia seems to have its origin in the motor apparatus, and I incline to regard the stagy behavior and hallucinations of voices commanding rigidity as suggested to the mind by the forced attitudes, precisely as an excellent digestion and circulation suggests exhilerant ideas and causes one to see everything *couleur de rose*. I have found urea secreted in abnormal quantity from two cases in the cataleptoidal stage.

One case of katatonia followed typhoid fever; another a strumous condition; one was sunstruck before becoming katatoniac; one male and one female case were "peculiar" mentally from birth, the male upon admission showing phases of hebephrenia. I have noticed some of these patients complaining in the beginning of rheumatic stiffness of the joints before catalepsy and delusions appeared. Katatonia seems to be allied ætiologically to some muscular rheumatoid disease, though its origin may be in nerves or blood. As showing what predisposition will do toward changing the nature of a psychosis, Mary R., Case No. 307, would have been ordinarily a case of melancholia ex lactatione, but was a decided paranoiac with depressing delusions of persecution.

I sent a report of 105 MS. pages to the American Neurological Society, June 17, meeting in New York, embodying some researches I have made upon the vaso motor system, with

pathological applications and suggestions concerning the treatment of certain forms of insanity. The paper, entitled "Nervous and Mental Physics," will appear in the August, 1884, *American Journal of Neurology and Psychiatry*. The paper is much too lengthy to be fairly abstracted here, but something of its tenor may be noted in the following concluding words:

One of the most important practical deductions that can be made from a recognition of the full identity of nervous and mental processes, in my opinion, is the necessity for regarding *psychic pain and kindred aberrations as calling for treatment continuous and persistent*, based upon rational therapeutics. Melancholia, mania, etc., are but symptoms of grave bodily disease, and precisely as in peritonitis pain is a guiding symptom for therapeutic succor, there is just as great a demand for constant antagonism of destructive cerebral disease, of which psychic pain is as symptomatic as general pain is in peritonitis and rheumatism of other organic disturbances. Ergot, conium, opium, stimulants, etc., with *intelligent and humane* care of the insane, are powerful aids toward bridging over the danger which threatens the mind. The cyclical nature of many forms of insanity are as well marked as is the self-limitation of typhoid fever; but where resolution and reorganization of hepatic or pulmonary tissues need not endanger life, that of the brain tissue leaves its mark for all time upon the psychic life. Hence the invasion should be fought from the outset so as to limit the necessity for reorganization (which is often cicatricial) as far as possible. Every step of insanity should be contested. Sleeplessness, furor, convulsions, overwhelming grief or excitement should be allayed constantly and judiciously with the powerful therapeutic agents at our disposal. Even in so hopeless a psychosis as that of paretic dementia, I have known remissions to be prolonged by such treatment, and for

the time being the patient was capable of making provision for the future of his family.

If we are ever to be able to conquer this terrible malady, it will be through adopting some such measures as those mentioned, and never through the prevailing *laisser faire.*

ARTICLE IV.

A SYNOPSIS OF THE MEDICAL BOTANY OF ILLINOIS. *By* J. M. G. CARTER, M. A., M. D., PH. B.

There are few States, if any, that have a more extensive list of native medical plants than Illinois. The physician has a complete materia medica growing profusely all about him wherever he goes in the Prairie State. While we are acquainted with hundreds of medicinal herbs, we are as yet only partially acquainted with their physiological and therapeutical action. One principle is beginning to dawn upon us which has often been totally ignored in studying the medical properties of plants, and even yet it is scarcely fully appreciated. That principle is this: The medical properties of the plants of a genus are identical, differing only in degree; and the properties of different genera of the same family or order are more or less related. This statement is not contradicted by the fact that remedial agents belonging to the same botanical genus are successfully used to accomplish different results. An individual property may be so marked in one plant and so feeble in another as to make the administration of these drugs produce very different effects. Thus, if A, B, C, and D are plants of the same genus which are astringent, stimulant, tonic, and diuretic in their therapeutical action, A may be the best astringent, B the best stimulant, C the best tonic, and D the best diuretic in the genus. Hence in physiological classifications if the same plants occur in separate classes, they occur in a different order of arrangement in the different lists.

Attention to the principle before given would obviate the numerous quackish laudings of new plants as specifics for diseases which were previously treated on general therapeutical principles. There is a large field for investigation yet in this

department of medicine, and it would seem that great good could be accomplished if country physicians and others who have opportunity would each select a particular genus of plants and closely study their therapeutical relations and power. The heterogeneous facts so frequently given concerning medicinal agents are very confusing to a student, and not much less so to the physician. It is not possible at the present time to give an accurate physiological classification of vegetable remedies; but there is no doubt that faithful and patient study of their properties would enable us to make such a classification ere long. The field for investigation in Illinois is not less extensive than that of any other State. The following list includes all the plants of the State, so far as I am aware, that have been used in the treatment of any form of disease, either by the profession or in domestic practice. The medical properties given are those dependent upon the physiological action of the plant when that is known; but it must be admitted that the information upon this point is but too meagre. The common English names are given in parenthesis; naturalized or adventive species are written in italics.

Order Ranunculaceæ. (Crowfoot family). 11 genera, 26 species. Genus Clematis (Virgin's-Bower), C. viorna (Leather-flower); C. Virginiana (Common Virgin's-Bower). Med. prop.: Acrid, vesicant, stimulant, diuretic, sudorific.

Genus Hepatica. (Liverwort, Liverleaf). H. acutiloba (Sharp-lobed Hepatica or Liverwort); *H. triloba* (Round-lobed H. or L.). Med. Prop.: Mucilaginous, astringent, pectoral, hepatic, tonic, deobstruent, diuretic.

Genus Anemone. (Wind-Flower). A. cylindrica (Long-fruited Anemone); A. nemorosa (Wood A.); A. patens (Pasque-flower); A. Virginiana (Wind-bloom, Virginian A.). Med. prop.: Acrid, corrosive, rubefacient, emetic, cathartic, diuretic.

Genus Thalictrum. (Meadow Rue). T. dioicum (Early Meadow Rue); T. anemonoides (Rue Anemone, Poor-man's rhubarb). Med. prop.: Purgative, diuretic.

Genus Ranunculus. (Crowfoot, Buttercup). *R. acris* (Tall Crowfoot, Buttercups, Crowfoot-Buttercup); R. aquatilis (Common White Water-Crowfoot); R. abortivus (Small-flowered Crowfoot); R. Flammula (Smaller Spearwort); R. Pennsylvanicus (Bristly Crowfoot); R. repens (Creeping Crowfoot, Common C.); R. sceleratus (Marsh C., Cursed C.). Med. prop.: Very acrid, counter-irritant, vesicant, narcotic, emetic, anti-scorbutic.

Genus Hydrastis. (Yellow Root). H. Canadensis (Yellow Puecoon, Golden-seal, Orange-root). Medical properties: Tonic, antiperiodic, laxative, cholagogue, detergent, alterative, diuretic, antiseptic.

Genus Actæa. (Baneberry). A. alba (White Cohosh, White Baneberry); A. spicata (Baneberry, Red Baneberry). Medical properties: Slightly acrid, purgative, emetic.

Genus Cimicifuga. (Bugbane). C. racemosa (Black Cohosh, Black Snake-root). Medical properties: Alterative, nervine, expectorant, emmenagogue, diuretic, anti-rheumatic, narcotic.

Genus Caltha. (Marsh Marigold). C. palustris (Marsh Marigold, erroneously called Cowslips). Medical properties: Mucilaginous, expectorant, pectoral.

Genus Aquilegia. (Columbine). A. Canadensis (Wild Columbine); *A. vulgaris* (Garden Columbine). Medical properties: Diuretic, emmenagogue, tonic, sudorific, discutient, diaphoretic, antiscorbutic.

Genus Delphinium. (Larkspur). *D. consolida* (Field Larkspur, Stagger-weed, Common Branching L.); D. exaltatum

(Tall L., Tall Wild L.). Medical properties: Diuretic, emmenagogue, vermifuge.

Order Magnoliaceæ. (Magnolia Family). 2 genera, 5 species:

Genus Liriodendron. (Tulip Tree). L. tulipfera (Tuliptree, White-wood, Poplar, Yellow Poplar). Medical properties: Aromatic, bitter, tonic, stimulant, diaphoretic, antiperiodic, vermifuge.

Genus Magnolia. (Magnolia). *M. grandiflora, M. glanca,* M. acuminata (Cucumber-tree); M. umbrella vel M. tripetala (Umbrella-tree). Medical properties: Aromatic, bitter, tonic, stimulant, diaphoretic, astringent, antiperiodic, antirheumatic.

Order Anonaceæ. (Custard Apple Family). 1 genus, 1 species:

Genus Asimina. A. tribola (Common Papaw, Custard Apple.) Medical properties: Mucilaginous, anthelmintic.

Order Menispermaceæ. (Moonseed Family). 1 genus, 1 species:

Genus Menispermum. M. Canadense (Moonseed, Canadian M., Yellow Parilla). Medical properties: Tonic, bitter, narcotic, diuretic, stimulant, alterative, laxative.

Order Berberidaceæ. (Barberry Family). 4 genera, 4 species:

Genus *Berberis.* (Barberry). *B. vulgaris* (Common B.). Medical properties: Tonic, laxative, cathartic, antiperiodic, refrigerant, antiscorbutic.

Genus Caulophyllum. (Cohosh). C. thalictroides (Pappoose wood, Blueberry, Blue Cohosh, Cohosh, Blue or Yellow Ginseng, Squaw Root). Medical properties: Stimulant, emmenagogue, diaphoretic, diuretic, antispasmodic, parturient.

Genus Jeffersonia. (Twin Leaf). J. diphylla (Rheumatism-root, Helmet Pot, Ground Squirrel Pea). Medical properties: Antirheumatic, antisyphilitic, diuretic, alterative.

Genus Podophyllum. (Mandrake). P. peltatum (American Mandrake, May Apple). Medical properties: Cathartic, cholagogue, alterative, resolvent, emetic, diuretic, diaphoretic, emmenagogue, vermifuge.

Order Nymphæacheæ. (Water Lily Family). 4 genera, 4 species:

Genus Brasenia. (Water Shield). B. peltata (Little Water Lily, Frog-leaf, Water Target, Deerfoot). Medical properties: Mucilaginous, pectoral, astringent.

Genus Nelumbium. (Nelumbo. Sacred Bean). N. luteum (Yellow Nelumbo, Water Lily, Pond L., Water Shield, Water Nuts, Water Chinquepin, Sacred Bean). Medical properties: Refrigerant, laxative, emollient, diuretic, diaphoretic.

Genus Nymphæa. (Water Nymph, Water Lily). N. odorata (Sweet-scented Water Lily, White Pond Lily). Medical properties: astringent, discutient.

Genus Nuphar. (Yellow Pond Lily, Spotterdock). N. advena (Common Yellow Pond L.). Medical properties: Astringent, demulcent, emollient, discutient, emmenagogue.

Order Sarracenaceæ. (Pitcher Plant Family). 1 genus, 1 species:

Genus Sarracenia. (Side Saddle Flower). S. purpurea (Pitcher Plant, Huntsman's Cap, Side Saddle Flower). Medical properties: Bitter, astringent, tonic, stimulant, diuretic, laxative.

Order Papaveraceæ. (Poppy Family). 4 genera, 4 species:

Genus Papaver. (Poppy). *P. somniferum* (Common Poppy, Opium Poppy). Medical properties: Narcotic, anodyne, stimulant, hypnotic, relaxant.

Genus Stylophorum. (Claudine Poppy). S. diphyllum (Horn Poppy). Medical properties: Fœtid, narcotic, lithontryptic, diuretic.

Genus Argemone. (Prickly Poppy). A. Mexicana (Mexican Poppy). Medical properties: Anodyne, diuretic, cathartic, emetic.

Genus Sanguinaria. (Blood-root). S. Canadensis (Red-root, Red Puccoon-root, Indian Paint). Medical properties: Emetic, sedative, hepatic, tonic, stimulant, diuretic, febrifuge, alterative, emmenagogue.

Order Fumarraceæ. (Fumitory Family). 2 genera, 3 species:

Genus Dicentra, D. cucullaria (Dutchman's Breeches); D. Canadensis (Squirrel-corn, Colic-weed). Medical properties: Antisyphilitic, diuretic, alterative.

Genus Fumaria. (Fumitory). *F. officinalis* (Common Fumitory). Medical properties: Bitter, tonic, alterative, diuretic, laxative.

Order Cruciferæ. (Mustard Family). 10 genera, 15 species:

Genus Brassica. *B. alba* (White Mustard), B. nigra (Black Mustard). Medical properties: Stimulant, emetic, rubefacient.

Genus Sisymbrium. (Hedge Mustard). *S. officinalis* (Hedge Mustard). Medical properties: Detergent, antiscorbutic, lithontryptic.

Genus Nasturtium. (Water Cresss). *N. officinalis* (True Water Cress), N. palustre (Marsh Cress). Medical properties: Stimulant, depurative, antiscorbutic, deobstruent, diuretic, hepatic, emmenagogue.

N. Armoracia (Horse-radish) belongs to this genus and has the same properties, but it is more frequently used as a rubefacient and a condiment.

Genus Erysimum. (Treacle Mustard). E. cheirawthoides (Treacle M., Worm-seed M.). Medical properties: Stomachic, vermifuge.

Genus Barbarea. (Winter Cress). *B. vulgaris* (Common

Winter Cress), *B. præcox* (Scurvy-grass). Medical properties: Plant—antiscorbutic, pectoral, detergent; seed—acid, lithontryptic.

Genus Arabis. (Rock Cress). A. Canadensis (Sickle-pod). Medical properties: Diuretic, antiscorbutic.

Genus Cardamine. (Bitter Cress). C. rhomboidea (Spring Cress). Medical properties: Diuretic, antiscorbutic, stimulant, condiment.

Genus Camelina (False Flax). *C. sativa.* Medical properties: Oleaginous, vermifuge.

Genus Capsella (Shepherd's Pense). *C. Bursa-pastoris.* Medical properties: Detergent, astringent, acrid, rubefacient.

Genus Lepidium (Pepper-grass, Pepper-wort). L. campestre; L. Virginianum (Wild Pepper-grass). Medical properties: Leaves—pungent, diuretic, alterative, antiscorbutic; seed—acrid, astringent.

Order Capparidaceæ (Caper Family). 2 genera, 2 species:

Genus Polanisia. P. graveoleus (Wormwood, Stinkweed). Medical properties: Vesicant, counter-irritant.

Genus Gyandropsis *G. purtaphylla.* Medical properties: Similar to last.

Order Violaceæ (Violet Family). 1 genus, 7 species:

Genus Viola (Violet, Heartsease). V. cucullata (Common Blue Violet); V. pedata (Bird-foot Violet); V. blanda (Sweet White Violet, American Sweet V.); V. canina (Dog Violet); V. sagiltata (Arrow-leaved V., Rattlesnake's V.); *V. tricolor* (Pansy, Heartsease, Johnny Jumpup); V. arvenis. Medical properties: Mucilaginous, pectoral, emollient, alterative, laxtive, emetic, cathartic, discutient, vulnerary.

(*To be continued.*)

EDITORIAL.

HEBRA'S CONTINUOUS TEPID-WATER BATH.

The continuous tepid-water bath occupies a prominent place among the elder Hebra's valuable contributions to general therapeutics. This bath consists of a large bath-tub, in which an iron frame with transverse slats is suspended by chains, so that the patient may be withdrawn from and returned to the water by means of a crank. The iron frame is covered with a horse-hair mattress, and furnished with comfortable pillows. The patient, perfectly nude—without any surgical dressing whatever—is placed in an easy position upon the mattress, and the bath-tub is filled with water of 30-31° C. temperature. A sensation of chilliness is usually experienced at this period, which is immediately dispelled by the rapid elevation of the water's temperature to 38-40° C. The temperature of the bath is permanently maintained at this degree by the continuous renewal of the water. A sheet, or other thin covering, may be thrown over the patient, and is useful by reason of its subjective effect.

The patient remains in the bath, day and night, except when withdrawn for the purpose of evacuation of the rectum or the bladder. There is no limit to the period of time which may be spent in the bath without detriment to the general health. Hebra has kept patients in the bath for periods of nine and ten months.

From this brief sketch it will be inferred that the pathological conditions which indicate the continuous tepid-water bath, are numerous and varied.

Burns, gangrenous wounds, bed-sores, and severe cases of pemphigus are notable examples of such conditions.

The best local treatment for burns,—especially when a considerable extent of surface is involved,—is to be found in the continuous bath. The terrible pain is relieved as by magic, psychic disturbance is quieted, and the patient frequently falls into a refreshing sleep. The intense *thirst*,—usually developed during the second stage,—is slaked, without the imbibition of liquids, which are rejected as soon as swallowed. Of course, in severe burns this method of treatment is too frequently of a merely palliative character; the patient dies in the bath just as he does under other methods of treatment.

When, however, death does not immediately follow the burn, we have a method of local treatment, at once simple, painless, and effective. "The water protects the wound surfaces from contact with the atmospheric air, prevents the decomposition of the sphacelus, and favors its separation; it makes every dressing and change of dressing unnecessary, limits the secretion of pus, and hastens cicitrization."—*Billroth.*

Gangrenous wounds,—especially the "puerperal ulcers" of the vulva and vagina, during the *puerperium;* bed-sores, from all causes, but particularly from spinal injuries, are influenced in the most favorable way. The patient is spared the distress and fatigue of all change of dressing, the wounds receive absolute antiseptic attention, and the attendants are relieved of much tedious and unnecessary labor.

Dermatologists very generally admit that grave cases of pemphigus find the best local treatment in Hebra's continuous bath. The pain, itching and burning sensations of this dis-

tressing affection are relieved, and comparative ease and comfort gained. In these cases the action of simple water is both palliative and curative.

As at present informed, there is no hospital in America in which the continuous tepid-water bath of Hebra is an accepted institution. It is difficult to give a good reason for such willful neglect of an invaluable therapeutic resource. The cost of construction and maintenance is relatively small, so that expense can not be pleaded as an extenuating circumstance.

A hospital, with a maximum capacity of ninety beds, has been recently constructed in Chicago. It is well endowed. Ten thousand dollars, we are told, has been recently expended upon surgical apparatus, and yet a case of universal burn cannot receive proper attention.

THE CHOLERA ABROAD.

The epidemic continues to advance, and there is now little hope of preventing its extension to the larger commercial and trading centers of Europe. Already several towns between Toulon and Paris are infected, and recent reports would indicate that the disease had appeared in Paris. All reports from a French source must be received with some allowance, as they have more or less of a commercial bias. The cry, "Don't call it cholera, lest it injure trade," is but an echo of the sentiment that in 1866 censured a medical college in this city, through the columns of the public press, for sending its class home after the loss of three of their number and the president of the faculty.

That there is nothing new under the sun is particularly true of the present epidemic. Most of our domestic and foreign exchanges have considered the subject at greater or less length,

but have thus far contributed to it little new or specially important.

At a recent meeting of the French Academy, M. Faurel, in his official communication, stated that the epidemic was not Asiatic cholera, but cholera nostras, due to the assembling of a large number of troops under bad hygienic conditions. This astonishing statement was made ten days after the epidemic had occurred. In closing his communication, M. Faurel assured the Academy, with characteristic French emphasis, that he had no doubt of the result (*i. e.*, the speedy subsidence of the epidemic), *mais je n'ai pas la pretention d' etre infallible*, and in the light of subsequent events there is but little doubt but that his brethren will agree with the latter statement. This discussion called forth a sharp criticism from Prof. Virchow in *Die Nation* of July 5. He arraigns the French government very severely for their inactivity in the early stages of the epidemic. One week after the first case appeared in Toulon, and while every day there was an increasing number of deaths, the French government remained strangely apathetic and no effort was made to prevent the spread of the disease. Whether it would have been possible to protect Marseilles is, in the opinion of Prof. Virchow, uncertain. But he clearly points out the failure of the French to make an early diagnosis, and their too confident reliance upon the pleasing assumption that it was only sporadic cholera. That they did not find the peculiar bacillus was no excuse for the error, as the diagnosis has been made many times before the bacillus was ever known.

Later, some physicians in Paris, who had too quickly assumed the sporadic nature of the present epidemic, announced that it was only a *mild form* of Asiatic cholera. What basis had they for the opinion that it was a mild form of the disease, or an epidemic that would soon pass away? Is there anything

in the history of past epidemics that will permit us to say that in this place, at such a time, the disease will be mild and will soon disappear? We think not. And yet it was on such premises that French sanitary officials allowed themselves to be lulled into a false security. The fact remains that the cholera was introduced by a French transport ship from Tonkin, and that through the apathy or ignorance of French sanitary officials the golden opportunity of stamping out the disease in its incipiency was lost.

The discovery of the bacillus has in no sense helped us to deal with the vital and practical points of the question. The probabilities point strongly to a bacterial origin of the disease, but the crucial test of inoculating animals has not succeeded, so the theory must still be held as doubtful, or at least not proved. That the peculiar bacillus may not be found in sporadic cholera is still uncertain, and helps to throw doubt on the theory. In the meantime we are left with a crowd of these unwelcome visitors knocking at our doors; our trans-Atlantic brethren presenting us nothing better than a possibility of a delay of two weeks for finding out what is the matter; and a brilliant leading article in the London *Students' Journal and Hospital Gazette*, advising us to use the opium and lead acetate pill after we have made the correct diagnosis! Do "they do *these* things better in France?"

Chicago and the Cholera.

When a stranger visits the city of Chicago for the first time, his earliest request is to be shown the "Water-Works and the Stock-Yards." These are the features for which the town has established a reputation. People who come to it from afar, from the Orient and the Occident, ask to see these wonders for

which the Mistress of the great Lake is famous. Some cities have a reputation for ancient statuary; some, for marvelous paintings; some, for musical culture; some, for rare pottery; some, even for *pate de foie gras!* But it is not for any of these that Chicago has become famous. It is for her Stock-yards and her Water-works.

We understand that at this time there is unwonted activity in and about the municipality, among editors, physicians, sanitarians, members of health-boards, and private citizens, on the subject of the possibility of an invasion of the city by the cholera scourge. In view of this wide-spread apprehension, and the precautionary measures resulting in the form of alley-cleaning, tenement-house inspection, etc., it becomes a duty as well as a pleasure to assure all who are interested, that Chicago will not and can not suffer from cholera. The basis of such a positive assertion is, as a matter of fact, to be found in the two things for which the city is famous. It is because of the Water-works and the Stock-yards.

The sacred singer of Israel once cried in a burst of poetic imagery, "Moab is my wash-pot!" Chicago might well echo with the refrain, "Lake Michigan is my wash-pot, my drinking-cup, and my chamber-pot!"

Her Water-works are indeed great. They supply her with water from the lake fully and freely, in fact, as fully and as freely as she restores to it again the refuse of her corporate body. If there be any germ of disease in her excreta, any virus lurking in her animal refuse, she receives it again in part, after it has been thrown off. If there be any potency in high dilutions, any truth in the doctrines of *similia similibus*, Chicago is safe from the cholera! If there be any virtue in the attenuation of a virus, such as has been demonstrated in the now famous experiments on rabies and fowl cholera, Chicago is,

without a shadow of a doubt, secure! It is the Water-works to which she is indebted for this priceless immunity. Her position is this: "I put my trust, not in disinfection, not in combustion, not in antisepsis, not in agents capable of destroying bacteria, but in two miles of lake water! That is the safe limit! Whether agitated by a boisterous storm, or as placid as a mountain-girt basin, these two miles shall stretch between me and all my sanitary sins! I will micturate, defecate, eject excreta, at one end of these two miles, and drink my water at the other, and I shall be safe! No wonder they come to see my Water-works! With these shall I not be cholera-proof!"

And there are those also who visit her Stock-yards! Not content with emptying her own ejecta into the lake from which she drinks, Chicago pours into it also the drainings from her immense cattle-yards, and from the great slaughter-houses where the animals brought to her doors from the whole of the Northwest are cut up and packed for the consumption of the world. The following is a description of the results of this great sanitary movement, which we clip from one of the daily journals, and which, from observation, we can declare to be within the bounds of sober truth:

"The South Fork is that fork of the South Branch of the Chicago River starting at Thirty-ninth and Halsted streets and emptying into the South Branch in Bridgeport near the pumping-works. It is about three miles in length and is the filthiest of all the branches of the river. The foulest, filthiest, deadliest section lies just north of the Union Stock-yards, and is about one mile in length, from 100 to 200 feet in width, and from nine to eighteen feet deep. It is wholly unprotected as to shade, there being no trees nor houses on either side, and when the sun shines upon it, it seethes and boils like a great cauldron of oil. To many intelligent people an inspection of the waters of this inland body would be a revelaation. The dark, seeth-

ing mass lying between the two banks of what was once a respectable creek cannot be called water. It is not refuse in its ordinary state. If it were white instead of black it might be taken for yeast. Its consistency in some quarters is about the same as paint, and when it comes in contact with the hull of a vessel it leaves a coating usually about an inch in thickness which has become known to the marine classes as 'Stock-yards paint.' Something of its character may be judged from the fact that water will not wash it off, and that the only way it can be removed is by taking the vessel into the dry-docks and using a steel scraper. Unlike the ordinary paint, it does not serve to prolong the use of timber, but, on the contrary, serves to hasten its decay.

"No living thing can drink this water and survive. It is a poison even to the grass that grows along the shore if poured upon it in large quantities. When used sparingly and mixed with other materials it serves as a fertilizer equal to bone phosphates and guano. Seen at a distance the surface of the water looks white, but a careful examination discloses that this is due to the bubbles which fill the scum, and that both it and the liquid are really as dark as stove-polish. The scum varies in thickness, depending upon the weather. The sun brings it up, and the wind sometimes drives it toward the pumping-works, two miles distant. A small quantity of it is sometimes carried away by the works, but much of it is again wafted back.

"At times this frothy portion, which is of the consistency of dough, forms a layer on the surface of the water two feet thick. Generally it is mixed with dead rats, dead dogs, dead cats, pieces of flesh, blood, and hair. An enterprising man has erected a lot of sheds near one corner of the Stock-yards, where he conducts a double-barreled business. Certain seasons, when the weather is not too warm, he gathers in acres of the scum, which is carried through a certain process by which it is relieved of the fatty substances. This has proven itself of great value to soapmakers, to whom several car-loads are sold each season. When the sun is too hot for this work, the soap-grease man turns his attention to the fertilizer business. Large quantities

of the filth is pumped into vats on the shore and evaporated. It is then sold to a large firm which mixes it with other materials and sells it for a fertilizer. When reduced and weakened by a mixture of bone dust it makes one of the richest improvers of worn-out soil yet discovered, but if used in its ordinary strength it would burn up everything planted near it.

"Many people suppose the South Fork is relieved by the Bridgeport Pumping-works, but the good the works do amounts to nothing at this point. The fork acts as a drainage for all large packing-houses in the vicinity of the Stock-yards. How feeble the effect of the pumping-works is may be appreciated when the fact is stated that the current of the fork, if a weary, inch-by-inch movement may be described by the use of that word, is in the opposite direction, toward a sewer, the opening of which is near Thirty-ninth and Halsted streets, and running towards the lake. Taking the statements of intelligent people whose interest in the locality have led them to study the subject, it is safe to say that this accumulation of rottenness never loses its character altogether, no matter what the season may be, and a history of the present mass would go back many years into the past.

"The effect of the stench depends upon the wind. In other words, it is naturally strongest in the face of the wind, and the people who live round about for a mile each way greet the changes of the weather-cock with alternate joy and sorrow. It is treated as a veritable river of death. On walking out in that direction the visitor unacquainted with the ground begins to feel that something strange and startling is about to happen, or has already happened. The situation is all the more difficult to comprehend if the wind happens to be blowing toward the river. Then it is difficult to comprehend why people going and coming hurry forward with such serious countenances. With many it has become a habit to quicken their footsteps as they approach the place, and they do so whether the wind comes that way or not, and the same pace is kept up on the other side until the place is cleared. Even when the odor is for a time suppressed the air for miles around seems heavy

and wanting in those elements which give ease and pleasure to the processes of respiration."

The witches' cauldron here correctly described, exhales its pestilential breath about two miles from the spot where some of the wealthy "packers" of this city have erected palaces which a king might envy, their costly stones overlooking the fashionable thoroughfare, where youth, beauty, premature age, and folly drive their showy equipages in a splendid ignorance of what is floating beyond! More than half a million men, women, and children have breathed in attenuation the vapors of this pestilential pool, and consumed the water, which in high dilution contains the power and potency of its multiplying germs. How idle to worry over any importation from Toulon, Marseilles, or other city of France, when Chicago has even more than can be imported, right at her own door! Shall she lament over the introduction of a few paltry rags from Egypt, when she has a greater rottenness in the grasp of her right hand! If the south fork of the Chicago river be not capable of destroying thousands where an imported pestilence could but kill its hundreds, it would not be part and parcel of this astonishing metropolis! No! Chicago will not have the cholera! She is protected by "vaccination" from a great deal worse! She has her wash-pot, her chamber-pot, and her drinking-cup in the great lake at her feet, and can look with a smile into the rheumy eyes of the Filth-Plague!

It is, however, true that Chicago *has* suffered from the cholera. But that was in an older time! Years after the scourge that once afflicted her had vanished, the boatmen on the river could see the relics of its grim repast in the ends of the rude slab coffins that projected from the sand-banks on either side the stream. But that was long before half a million of human beings and many more animals had converted the river into

an open sewer! They had no Water-works and Stock-yards in those primitive days! Then there was no "vaccination"-process for protection. The untutored hunter of scalps and his friend, the Indian trader, then had their little stools down stream, and drank from the water above. Being thus quite unprotected, they fell easy victims to the foreign germ!

But to-day, as the dark shadow of the scourge falls across the Atlantic, it is so much lighter in effect than the south fork of the Chicago river, that the spot is even brightened by the reflection! Chicago has her Water-works and her Stock-yards! She is safe!

(Sanitary and other exchanges are welcome to copy!)

BOOK REVIEWS.

PRACTICAL MANUAL OF OBSTETRICS. *By* DR. E. VERRIER, *Lecturer on Obstetrics in the Faculty of Medicine of Paris. First American Edition, from the Fourth French Edition, with Revision and Annotations by* EDWARD L. PARTRIDGE, M. D., *Professor of Obstetrics in the New York Post-Graduate Medical School. April Number of Wood's Library; 8 vo., pp. xxi, 395. New York:* WILLIAM WOOD & CO. *1884.*

A *handbook* upon the art of midwifery is of questionable value, even when it is a methodical and exact *resume* of the principles and facts of the subject. When, however,—as in the present case,—the facts and principles of the art of midwifery are discussed without critical attention either to method or accuracy, its *raison d'etre* is clearly indemonstrable.

In the limited space at our command, we desire merely to allude to a few statements liable to criticism.

In the article upon the pelvic articulations, p. 6, the sacro-iliac and pubic articulations are termed symphyses, and no reference to synovial membrane is made in connection with the description of these joints. Luschka claims that these articulations are true joints, since the bones entering into their formation are expanded, covered by cartilage, held together by strong bands, or capsules, and the joint cavity is lined by synovial membrane. This view is sustained by the researches of Strauss and Muller of Vienna, in the demonstration of the

presence of true joints in the same articulations among the domestic animals, in whose parturitions they are of great importance.

The dimensions of the false pelvis, as given on page 9, do not agree with the measurements of Carl Braun or Charpentier. On page 13, the angle of the female pubic arch is said to be 76°.

On page 99, the assertion is made that in first positions of face presentations,—that is, in right mento-posterior positions,—"the heart sounds are heard, as in the first position of the vertex, at the left of the abdomen, where (Depaul) "the back of the fœtus transmits the heart-beats to the ear of the listener."

Modern obstetrical authorities support the doctrine of Carl Braun: [1] "The fœtal heart-tones are always heard on the sternal surface of the fœtus, and on that side of the maternal abdomen toward which the point of the chin is directed."

On page 136, we are warned against Crede's method of placental delivery, except when "the cord is ruptured, or is very delicate and friable, or again, when we suspect an abnormal insertion."

"In the fever of recently delivered women," we are told, on page 141, that the patient must not "have too much fresh air."

The uncontrollable vomiting of pregnancy is stated, on page 151, as an indication for the induction of premature labor.

Bleeding is recommended on page 156, in eclampsia; on page 170, in abortion; on page 171, in hemorrhage; on page 172, to check uterine contractions; on page 283, in version.

The portion of the book devoted to operative obstetrics is incomplete in its discussion of conditions and indications for operative procedure.

Professor Pajot's preface and tables constitute the valuable

1. Carl Braun's Lehrbuch, d g Gynækologie, p. 188.

portions of the book, and will be received by the medical public with great satisfaction. Dr. Leigh H. Hunt, the translator, has discharged his duty in a faithful and felicitous manner.

The notes of the American editor present, as a rule, a pleasant contrast to the text. We do not agree with him, however, in his advice on page 235, to convert the face into a vertex presentation. However successful such efforts have been in the editor's hands, the practice is emphatically condemned by the great obstetrical authorities of the day.

Typographical errors are numerous and inexcusable.

Finally, if judgment must be passed, we do not think the book entitled to high consideration as a fair exposition of the subject, viewed absolutely or in relation to obstetrical doctrines in France.

W. W. J.

HANDBOOK OF VERTEBRATE DISSECTION. PART III. *How to Dissect a Rodent. By* H. NEWELL MARTIN, D. SC., M. D., M. A., *Professor in the Johns Hopkins University, and* WILLIAM A. MOALE, M. D. *12mo., pp. 247. New York:* MACMILLAN & Co. *1884.*

This little book fulfills, with unusual freedom from fault, the function for which it was intended. As a *handbook* for use at the dissecting-table, it is a valuable acquisition.

It is a matter of regret with us, however, that the rabbit was not chosen instead of the rat. The former is the favorite animal in Germany, is peculiarly adapted to the purposes of physiological investigation, and is quite as abundant and widely distributed.

The text is remarkably free from technical and typographical errors.

We commend the book most heartily to our readers.

W. W. J.

SELECTIONS.

The regular quarterly meeting of the Illinois State Board of Health was held in its rooms in the Capitol Building, at Springfield, on Wednesday, July 2, 1884.

Present, at the afternoon session, Drs. Haskell, McKensie, Kreider and Rauch; Dr. Haskell presiding in the absence of the president; and at the evening session, in addition to the above, Newton Bateman, the president, in the chair.

Dr. Geo. N. Kreider, of Springfield, appointed to succeed Mr. Reen, of Peoria, resigned, was introduced to the members and took his seat with the Board.

The minutes of the last quarterly meeting, April 17 and 18, were read and approved; after which the regular order of business was suspended and the Board went into executive session on certain cases of colleges and practitioners, under the Medical Practice Act.

During the evening session the following quarterly report of the Secretary was presented:

QUARTERLY REPORT OF THE SECRETARY, APRIL 1–JUNE 30, 1884.—During the quarter ending June 30, 1884, there were received in the Secretary's office 604 communications, letters, papers, etc., exclusive of 197 diplomas submitted for verification, and the affidavits and other papers accompanying applications for certificates in 226 cases. There were sent out during the same period, 827 letters, postals, circulars, etc., and other communi-

cations, and the usual quantity of the Board's publications—reports, registers, preventable-disease circulars, epidemic disease blanks, forms of ordinances, etc. Two hundred and forty-two packages were received, and 212 sent out, by express. Seventy-three telegrams received and 102 sent.

Certificates entitling to practice medicine and surgery, under the Medical Practice Act, were issued to 170 graduates upon diplomas of colleges which have complied with the requirements of the Board, entitling them to be classed as in good standing, and to four upon length of practice in the State. Under the authority conferred upon the Secretary at the last meeting, seventeen applicants for certificates, holding diplomas of colleges which had not fully complied with the Board's requirements, have been notified that they would have to submit to examinations on the branches or subjects omitted by their respective schools. In nine of these cases the applicants have already been examined and certificates issued; five of these were examined in hygiene only; three in hygiene and general education; and one on all the branches, including general education. Three declined to appear to be examined and have left the State, and the remaining five are now awaiting their examination.

Examinations of five midwives have been made, and certificates issued to three of these, who passed successfully, and seven to others upon diplomas and licenses, or other recognized credentials.

THE MEDICAL PRACTICE ACT.—Since the last meeting of the Board, the Dr. C. Buell Rice, to whom a certificate was refused at the special meeting of January 30, has been tried and convicted of practicing in violation of the Medical Practice Act. The case was tried in the Sangamon County Court, May 19, before his Honor, Judge Matheny.

The defense set up the plea that, being a graduate of a "legally chartered medical institution in good standing," the defendant was entitled to a certificate; and that it was not competent for the Board to enquire into the moral or professional character of such graduates. On the part of the prosecution, it was shown that charges had been presented to the Board, alleging that Rice was in the employ of, and associated with, the "K. and K. Surgeons," a firm of advertising quacks, of Cincinnati and elsewhere, and that, in various ways connected therewith, as recited at the special meeting, January 30, his conduct was unprofessional and dishonorable, within the meaning and intent of the Medical Practice Act; that upon these charges the Board had refused to issue Rice a certificate until he had disproved the same; that instead of making any attempt at such disproof, Rice continued to practice; whereupon he was arrested for practicing without the necessary certificate. The facts were admitted by the defense, but, as already stated, the Court was asked to dismiss the suit on the ground that it was obligatory on the Board to issue its certificate to the possessor of a genuine diploma of any "legally chartered medical institution in good standing," regardless of the moral or professional status of the individual. This the Court declined to do, but found the defendant guilty, and assessed a penalty of $50.00 and costs. Notice of appeal was at once given by the attorneys for the defense, but this was subsequently abandoned, the fine and costs were paid, and this last representative of the "K. and K. Surgeons" has left the State.

While this decision again affirms the right and duty of the State Board of Health to inquire into and determine the status of individual practitioners, a decision by the Supreme Court of the State, rendered May 20, sustains the right of Boards constituted as is the State Board of Health to determine the status

of a college. Under the Act to Regulate the Practice of Dentistry in Illinois, the Supreme Court refused the petition of a dentist, one Isaac N. Sheppard, for a writ of mandamus to compel the State Board of Dental Examiners to issue him a certificate or license based upon a diploma of the Indiana Dental College. The Board refused the license upon the ground that the College was not a "reputable" institution. It was argued that the law constitutes the Board judges of the standing of a college, and there is no power of review vested in any other body.

"If the Board should arbitrarily or unreasonably abuse their discretion, and refuse a license without any reason therefor, there is a remedy for such abuse of discretionary power." But there was no ground for claiming that this was the case in the present instance. The Board, in its judgment, had decided that the curriculum of study and requirements for graduation of the Indiana Dental College were not such as to entitle it to be classed as "a reputable dental college," and there is no power in the law given to any person or body to review and set aside, or confirm, the exercise of this discretion by the Board. The petition for a mandamus was, therefore, denied.

It is also noted, in this connection, that two colleges which the Board has long refused to recognize as in good standing, have recently met with signal and final defeat in their efforts to secure a legal rehabilitation. The New York Court of Appeals has affirmed the judgment rendered by the Supreme Court of that State, about a year ago, in the case of the United States Medical College of New York, setting aside the charter of that institution. As this appeal was understood to be taken as a test case by the attorneys for the Buffalo College of Physicians and Surgeons, this decision is to be regarded as conclusive on this college also.

There have been fewer complaints, made direct to the Board, of unprofessional conduct, and fewer cases of this kind otherwise coming under observation, during this quarter than ever before in the history of the Board. The man J. E. Anderson, of the "American Surgical Institute," of Indianapolis, previously run out of Paxton, Tolono, and elsewhere, was arrested at Freeport, on the 9th of May, for practicing in violation of the law. The case was clearly made out, Anderson pleaded guilty, a fine of $50 and costs was assessed, which he paid, and at once departed for his Indiana home. A list of some fifty of his victims in the northern part of the State, has been furnished me. About the middle of June an itinerant, by the name of Riley, was arrested in Dixon for violation of the law, and was bound over for trial.

Two of the Chicago quacks, arrested for circulating obscene and indecent literature through the mails, have recently been tried in the United States District Court, and fined $200 each, with costs. One of these cases was an aggravated one, many of the vile pamphlets having been sent to school-girls at various places. I do not hesitate to pronounce the penalties inflicted in these cases as totally inadequate. Although the stereotype plates and the editions found were understood to have been destroyed, one of these men is already distributing his "Hidden Secrets." The only way to suppress these viola tors of public decency and morals is to imprison them.

MEDICAL EDUCATION.—At the annual meetings of the various medical organizations, State and National, which have been held during the past three months, the subject of the preliminary education of medical students has received more than usual attention. Almost unanimously, the individual members of the profession, and these various organizations as units (with one single exception), have pronounced in favor of exact-

ing proof of proper preliminary education before admitting candidates to the lecture classes. There is practically no opposition to the movement, the only dissentients now remaining being a few members of college faculties, influenced, probably, by a fear of diminishing classes. With few exceptions—and these diminishing in number from time to time—the better class of colleges have already adopted this requirement. Every announcement for the session of 1884–85, thus far received, makes this a distinctive feature; but it is to be wished that the colleges would state specifically in their announcements the kind of examinations applicants would be subjected to, or the proof of fitting education required, instead of merely saying, as some of them do, "a preliminary education is required," or making use of some similar vague generality.

As illustrating the wide-spread influence of the effort to heighten the standard of professional acquirements, it may be stated that, at a recent meeting of the Nebraska State Medical Society, the qualifications for admission to membership were so amended as to require that applicants must be graduates of colleges which in all respects conform to the standard of minimum requirements of this Board.

In the further interest of medical education, I think it the duty of the Board to exert its influence towards securing legislation for the proper and adequate supply of material for the study of practical anatomy. Colleges in this State have been embarrassed, during the past year or two, in their efforts to properly instruct their students in this most important branch; and the difficulty is increasing. Surgical knowledge and skill cannot be acquired without an intelligent practical study of anatomy; and in order to secure this, the methods and sources of the supply of material need to be more definitely recognized and regulated by law.

THE PUBLIC HEALTH.—Scarlet fever and small-pox prevailed to some extent during the first half of the quarter, mainly in the southern portion of the State. Except the few cases in Chicago and those in Kendall county, all the small-pox cases occurred in the south half of the State, but scarlet fever was more generally diffused. Both diseases have been of a mild type, with a moderate death rate. As the season advanced there has been the usual increase in the diseases of hot weather, but not characterized by any noteworthy features.

Although eight cases have been brought into Chicago from other places since January 1st, 1884, only one case was contracted from any of these by a resident of the city. Three of these eight cases were Indians brought in from the Indian Reservation; two were from Indianapolis; one from Cincinnati; and two from the town of Cicero—said to have been contracted from a tramp from Ohio. One of the Indianapolis cases reached Chicago four days before the appearance of the disease, and from him resulted the only case which originated in the city—a man with whom he slept one night contracting the disease from him. In no other case was there any spread of the disease; and the methods of dealing with cases as they appear, the details of disinfection, the general vaccinal protection of the community—especially of the 70,000 school children and the large number of poor people—are so thorough that Chicago, notwithstanding its immense railroad travel and large number of transients, has been, for many months, one of the safest cities in the Union in this respect.

At the close of the last quarter small-pox existed in Centralia, Marion county; Charleston, Coles county; and Coulterville, Randolph county. Owing to municipal neglect and a mistaken idea of economy, the disease obtained a foothold in Centralia, which it subsequently required great effort to over-

come, besides creating alarm and apprehension in neighboring communities. The disease was conveyed from this place to Irvington township, in Washington county; to Bellerive, in Jefferson county; and to Springfield. The first case in Centralia, it is stated, was treated by Dr. Alexander Jones, whose certificate the Board revoked at the January meeting, for unprofessional and dishonorable conduct. It is alleged that Jones treated the case without any of the necessary precautions; not reporting it to the authorities, nor in any manner guarding against spread of the contagion. The patient was treated during the entire illness in a room separated only by a curtain from a shoe shop on one of the most frequented streets of the town, and the shop was daily visited by numbers of persons. It is believed that all the cases in Centralia—32 in number, with 6 deaths—as well as those in Washington, Jefferson and Sangamon counties, are primarily due to the criminal conduct of this man. The Board has exhausted its authority in dealing with him by revoking his certificate, since he claims the exemption of the ten years prior practice clause of the Medical Practice Act. In charging him, however, with being primarily responsible, it is not meant to exonerate the municipal authorities from all blame; for, as early as the 8th of March, they were duly notified of the existence of a case resulting from this first concealed case.

From the tramp who carried the disease into Charleston, Coles county, as reported at the April meeting, there resulted five other cases, making a total of six cases and three deaths. The first of this last group of cases was a man who visited the tramp, denying that the latter had small-pox; in the usual time he came down with the disease, and died on the thirteenth day.

At Coulterville, Randolph county, also mentioned in my

last report, there were five cases, with one death in the first outbreak, which was caused by a negro roustabout who had contracted the disease on the river. Notwithstanding a rigorous quarantine of isolation and other precautionary measures, some obscure cases of varioloid followed this first outbreak; and, through failure to correctly diagnose the early cases of this second group, which were not characteristic, the disease still continues. The condition of affairs at this place, and a conflict of opinion as to some of the cases now under treatment, led me to visit the locality personally on the 28th of June, when I found two well-marked cases, one of small-pox and one of varioloid. The severer of these two—and which will probably prove fatal—was in Perry county, just over the line; but instructions were given the Coulterville authorities to extend their quarantine jurisdiction so as to embrace this case, and to vaccinate or revaccinate all persons in the compromised area, who had not been successfully protected within the last two and a half years. The spirit manifested by the village authorities, the physicians and the citizens whom I met, warrant the belief that this outbreak will now be soon suppressed. I communicated also with one of the county commissioners and the county clerk of Perry county, and the county commissioners of Randolph county, and feel assured of their co-operation and assistance.

The outbreak at Yorkville, Kendall county, previously alluded to as having been first reported at the close of the last quarter, was due to a young man recently arrived from New Orleans, who had an unrecognized case of varioloid. A large number of persons were exposed before the facts were known, and a total of nineteen cases, with four deaths, resulted. So much excitement was caused by the first group of these, some fourteen in number, eleven of which appeared in rapid succes-

cession between March 27th and April 2d, and in several localities, that I found it necessary to visit the town personally. The published instructions of the Board were thoroughly carried out, a supply of vaccine virus was obtained, and all unprotected persons were at once vaccinated. Notwithstanding the number of the centers of infection, only five more cases resulted—the last being after an interval of fully a month. The speedy suppression of the outbreak, which promised to be very serious at the date of my visit, was due to the prompt and efficient co-operative action of the authorities of the four separate jurisdictions in which the cases appeared. The detailed reports of these cases have been received, and from them the usual state of facts concerning vaccination is found; that is, that of the four fatal cases, three had never been vaccinated at all, and the remaining one had had small-pox when young, and had been vaccinated "seven or eight times unsuccessfully—it never would work"—owing probably to the previous attack of small-pox, the protection from which seems to have been exhausted prior to this last exposure. Of the fifteen who recovered, two had never been vaccinated at all; one, not until after the febrile stage of the disease had begun; and four others, not until after exposure. All these recovered, as did also the remaining eight who had been successfully vaccinated at various periods prior to exposure. None of those attacked had ever been revaccinated.

There have been seven cases of small-pox, with two deaths, among colored steamboat hands at East St. Louis, all contracted on the river. These cases were removed as soon as discovered, from time to time, to the St. Louis small-pox hospital; and about the last of May I received a communication from the Health Commissioner of St. Louis, stating that the East St. Louis patients were the only ones then in the hospi-

tal, and that the institution was kept open solely for the benefit of the latter place. While this is technically true, the relations of the two places are such that what is done for the one, in such a matter as this, is really done for both. However, I again visited East St. Louis and discussed the situation with the authorities, and am glad to be able to state that a Board of Health has since been organized, and the burial-permit ordinance prepared by the Board has been adopted.

Isolated cases of the disease have also occurred during the quarter at Mound City, Pulaski county—one case, probably contracted on the river, no spread; Red Bud, Randolph county—one case, contracted in Cairo, no spread; in Irvington township, Washington county—two cases, contracted in Centralia, and one from these in the person of the nurse, who had had the small-pox when young; at Bellerive, Jefferson county—one case, contracted in Centralia, no spread; in the country, six miles north of Nashville, Washington county—one case, contracted in Coulterville, and from this four more cases in the same family; in Ashmore township, Coles county—one case, contracted in nursing an unreported case on the county poor-farm, patient had had small-pox when young; and in Springfield, Sangamon county—one case, contracted in Centralia, and not recognized until after death, so that there will probably be other cases from this, although the usual precautions were at once taken, when the character of the illness was discovered. At the close of June another group of three cases is reported in East Fork township, Clinton county, five miles southwest of Patoka, and sixteen miles north of Centralia, where the disease was contracted.

Although the contagion has been repeatedly introduced into Illinois from without, during the past winter and spring, we have been fortunate in escaping it by immigrant introduction,

thus far. Neighboring States have been less favored—Iowa, for example, having now a serious outbreak, upwards of 20 cases in one county—all among emigrants landed at Baltimore, from the steamer *Salier*, of the North-German Lloyd's Line. The want of appropriations, whereby the National Board of Health might continue its Immigrant Inspection Service, is seriously regretted.

With regard to further action concerning small-pox, in view of the probability of its epidemic spread from abroad, as shown by its increasing prevalence in London and elsewhere, and its frequent introduction into the State from neighboring States, I would suggest that it is desirable to call the attention of sanitary authorities and others to these facts and to the experience of the last few months, which shows that when the disease is introduced into a community where vaccination and revaccination were not thoroughly carried out during the recent epidemic, there is still danger of serious trouble. It is also important that County Superintendents, school-boards and others interested should have their attention again directed to the fact that the School Vaccination Order of the Board is permanent and continuous; and that its thorough enforcement is expected, so as to prevent any accumulation of unprotected or imperfectly protected scholars from term to term. To this end I think it necessary to again print and distribute copies of the Order, with necessary instructions, together with supplies of certificates and blanks for returns to be made through the county superintendents by the first of January next.

Cases of glanders and other infectious diseases among animals continue to be reported to the Board. On the 28th of June Dr. C. N. Cooper, of Batavia, Kane county, reports having a patient under treatment, suffering with glanders, and wishes instructions and advice as to his actions. The amended Pleu-

ro-pneumonia and Glanders Act has by no means relieved the Board of responsibility in these cases.

The public naturally apply to the health authorities in matters pertaining to health, and thus far the State Veterinarian is only reached in a large number of cases through this office. Whether legislation is necessary on this subject, and what form it should take, are matters which seem to require the consideration of the members.

CHOLERA.—An epidemic spread of Asiatic cholera now seems imminent. What is known as the Damietta outbreak failed to secure a foothold in Europe last year, and with the exception of a few isolated cases in Russia and one fatal case at the Smyrna lazaretta—all in July of 1883—it is believed that the disease from this outbreak was confined to the delta of the Nile. France, it is true, was threatened by the arrival at Havre of the steamer *St. Bernard*, in June last, with one case on board; but preventive measures were successfully instituted on that occasion and the evil then averted. About the first of May, 1883, the British troop-ship *Crocodile* was reported in quarantine at Portsmouth, England, having then had eight cases of cholera on board, six of which proved fatal; but on this occasion, also, the disease seems to have been confined to the infected vessel. The French have been less successful in their recent precautionary attempts, if it be true, as is now alleged, that the Toulon outbreak was due to a fatal case on board the transport *Montebello* from China—the infected clothing of the case not being destroyed. Later advices state that the disease was brought from Egypt in the troop-ship *Sarthe*. It has already spread to Marseilles, the villages above Toulon, and cases are reported in Italy and elsewhere.

Whether the disease will cross the Atlantic from the east will largely depend, of course, upon the efficiency of the meas-

ures employed to confine the contagion to its present localities. Very general activity is manifested by all the European governments and sanitary authorities; and it is to be hoped that they may prove successful, although the dissenting opinions of the English authorities as to quarantine may lead to friction between them and the Continental authorities. Meanwhile we are threatened not only from Europe, but from the opposite side of the globe, cholera seeming to be spreading in China, and to have broken out in Japan.

In view of this condition of affairs, I have thought it my duty, on behalf of the Board, to urge that the organization of the National Board of Health should be maintained, and have advised to that effect, hoping that it may be possible to still secure the necessary appropriation for this purpose in the Sundry Civil Service bill. Should cholera continue to spread on the Continent, it is more than likely to find an entrance into this country, despite the efforts which may be made by local and State authorities to exclude it by quarantine regulations. Want of uniformity, failure to co-operate, commercial considerations, and local conditions, all combine to impair the efficiency of any system of quarantine; and to the extent that these obtain, in the absence of a uniform system, is the danger of failure increased. The remedy, of course, is in the National control and administration of quarantine; and the present emergency furnishes another argument for the continuance of the National Board of Health, with adequate appropriations and increased power and authority.

As to what should be done by us as a Board in the present aspect of affairs, I would say that my own experience and observation lead to the conclusion that it is not judicious to place entire reliance on quarantine measures, no matter how administered, should the disease become epidemic in countries or

ports with which this country has close commercial relations. Asiatic cholera, although it may invade places in good sanitary condition, finds its most congenial habitat where filth in any form abounds. The best attainable sanitary condition—clean streets and premises; the prompt and proper disposal of organic refuse, night-soil and all forms of sewage; well ventilated habitations with dry, clean basements; a pure and sufficient water-supply; and good individual hygiene, including personal cleanliness, a proper diet, and regular habits of life—these are the best safeguards against Asiatic cholera, as they are against most diseases. If it should unfortunately appear in a locality whose sanitary condition is good, as thus outlined, there is every reason to anticipate its prompt arrest by well understood measures—thorough isolation of cases, disinfection of discharges, etc. Cholera is pre-eminently a disease to be fought by sanitation.

Professor Koch's recent researches, by which he has demonstrated the existence of the cholera bacillus, promise something in the way of special prophylaxis; and in so far as this is in a direction to which a great mass of empirical knowledge points, it may be worth while calling attention to this feature. I allude to the practical point, which Koch has demonstrated, of the development of the coma-bacilli in alkaline moisture, and its arrest or destruction by acids. If further experiments confirm this proposition, the preventive treatment of Asiatic cholera may come to be a matter of as much certainty as the prevention of small-pox.

As to our own immediate action in the premises, I have to suggest that the attention of sanitary authorities throughout the State be officially called by the Board to the necessity of promptly securing the best attainable sanitary condition of their respective localities.

A thorough sanitary organization of the State, with the view of improving its general sanitary condition, is one of the matters to which the Board may now profitably give its attention. The Board is now, at the end of its first term, in a position to give this subject more consideration than heretofore; and it is entirely possible that such an emergency may present itself as will make this of the first importance.

YELLOW FEVER.—With the exception of recent reports of the reappearance of the disease at Guaymas, Mexico, where it prevailed extensively last year, and of some increase in the number of cases in Havana, there is an encouraging absence of yellow fever indications in the South up to date. A conference of representatives of the Boards of Health of the Gulf States was held, at the request of the newly organized Louisiana State Board of Health, in New Orleans, on the 2nd, 3rd and 4th of June; the object of the conference being to bring said boards into harmony, and, if possible, to devise and recommend improvements in the systems of quarantine in vogue along the Gulf coast. Representatives of the General Government, of the Auxiliary Sanitary Association, and of the various commercial organizations of New Orleans, were also present by invitation. The proceedings were characterized by moderation and a gratifying display of mutual confidence and desire for thorough co-operation. Many practical suggestions were made, and, on the whole, the conference would seem to promise more of benefit than anything of the kind which has occurred of late years in that region—provided, the means necessary to put into effect the wishes and intentions of those concerned be forthcoming.

Meanwhile, as already stated at our last meeting, the Sanitary Council is prepared to adopt, if it should become necessary, the same line of action in regard to the prevention of the

introduction of yellow fever, or other epidemic diseases, into the Mississippi Valley, as that pursued in 1883.

SANITARY CONFERENCE.—In accordance with the authority given at the last meeting, I attended the conference of representatives of State Boards of Health, held during the recent session of the American Medical Association in Washington. An organization was effected, officers elected, and plans adopted for securing co-operative action by the various Boards in the event of any emergency arising which threatens the sanitary interests of any of the States in common. Meetings will be held during the annual sessions of the American Public Health Association for the interchange of views and the furthering of the plans and objects of the organization.

THE FIFTH ANNUAL REPORT.—Continued delays in the public printing office have still further postponed the publication of the Fifth Annual Report of the Board; but a full force of compositors is now at work upon it, and assurance is given of its speedy completion.

The material for the Sixth Annual Report is in an advanced state of preparation, and together with the Revised Official Register of Physicians and Midwives, which is also nearly ready, will be put in the printer's hands as soon as the Fifth Annual Report is out of the way.

All of which is respectfully submitted.

JOHN H. RAUCH,
Secretary.

At the conclusion of the reading of the Secretary's report, which was accepted, and ordered placed on file, the following resolutions were adopted, looking to putting into effect the various suggestions embodied in the report.

Resolved, That the importance of the study of practical anatomy, as a foundation for surgical knowledge and skill, demands

that the supply of material for this study be more definitely regulated, and its necessity recognized by law, and that the Illinois State Board of Health respectfully urges the attention of law makers to these considerations.

Resolved, That the increasing prevalence of small-pox in London and elsewhere, indicating a probable renewal of this epidemic tendency, and its frequent introduction into Illinois from neighboring States, within the past few months, make it desirable that vaccinal protection be secured as fully as possible in every portion of the State; and to this end the Secretary is hereby authorized to call the attention of the sanitary authorities and others to the subject; and to take the necessary steps to push the further enforcement of the School-Vaccination Order of the Board, so that all new scholars, and those who have not heretofore fully complied with its provisions, may be properly protected against small-pox before the advent of cold weather.

Resolved, That while epidemic cholera may be excluded from this country by thoroughly-enforced quarantine regulations, yet the best attainable sanitary condition of every locality in the State should be secured, so that, in the event of Asiatic cholera effecting an entrance, notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances. The Secretary is, therefore, hereby authorized to take such action as, in his judgment, will most promptly obtain a thorough sanitary organization of the State and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

On motion of Mr. Haskell, the Secretary was given discretionary authority to act for the Board in any case of emergency which may arise in the interims between the regular meetings.

During the executive sessions the cases of a number of colleges, with reference to the requirements of the Board and their standing under the Medical Practice Act; the important feature of the office correspondences during the quarter; and the cases

of a number of practitioners, were considered, and the necessary action was taken in a large number of these.

The following certificates were ordered to be revoked:

Certificate No. 913, issued to Peleg W. Blakeley.

Certificate No. 1103, issued to Fritz Tripple.

Certificate issued to William Becker.

Certificate No. 3190, issued to S. Meyer.

After the transaction of sundry routine business, auditing of accounts, etc., which occupied the hours of the morning session, the Board ajourned at 11:30 A. M.

BERLIN, 13 June, 1884.

Dear Sir:—The Berlin Polyclinic begs you, in the interest of those medical gentlemen anxious for an opportunity of going through a course of training in special subjects, kindly to copy the following in the editorial columns of your valuable paper.

Clinical courses, comprising all the different special branches for practical physicians, are held every month in the Polyclinic at Berlin (Germany), Carlstrasse 30. The courses always commence on the first week day of the month. They last a whole month and are held every working day.

The number of participants is limited to six for every course. Should more than six apply for the same course, an extra—or parallel—course will be formed.

To all those physicians wishing to perfect themselves in a special branch, the opportunity is given to serve three months as assistants in that particular branch. Those gentleman having served as assistants will be allowed in appropriate cases to conduct the extra or parallel courses.

We intend to elevate the Berlin Polyclinic to an international medical school for the improvement of physicians of every country. In order to have the courses conducted in foreign languages, assistantships will be conferred also to foreign physicians.

Yours, very respectfully,

DR. LUDWIG LOEWE,

Surgeon-General of the Berlin Polyclinic.

AMERICAN MEDICAL ASSOCIATION.

PHILADELPHIA, June, 1884.

Dear Sir:—At the meeting of the American Medical Association, held at Washington in May last, an Amendment to Regulation II. was adopted, which provides that—

Membership in the Association shall be obtainable by any member of a State or County Medical Society recognized by the President and Secretary of said Society; and shall be retained so long as he shall remain in good standing in his local Society, and shall pay his annual dues to the Association.

You will perceive that, as far as such opportunities are embraced, the strengh of the Association will be increased and consolidated, so as to unite the profession and give it a force and influence not otherwise attainable. Without undertaking, however, to point out the advantages of this action on the part of the Association, or to advocate the plan of which it is a main feature, it may simply be said that, as the new departure has been taken, it is for the Association and its constituent bodies to carry it out to the fullest extent, and to give the movement their hearty co-operation.

Toward this end, the first step is to make the action of the Association as widely known as possible; and you are, therefore, requested to bring the matter to the notice of your Society and its individual members, either by circular, or in such other way as may seem to you most effective for the purpose.

Applications for membership, in the manner specified above,

accompanied with FIVE DOLLARS for annual dues, should be sent directly to the Treasurer, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa.; on receipt of which the weekly Journal of the Association will be forwarded for one year to such member. Respectfully yours,

WILLIAM B. ATKINSON, M. D.,
Permanent Secretary.

[Copies of this circular have been sent to the mayor (or presidents of village boards) of 644 cities, villages and towns in this State.]

ILLINOIS STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
SPRINGFIELD, July, 1884.

DEAR SIR:—At the recent meeting of the State Board of Health, held in Springfield, July 2d and 3d, 1884, the following resolution was adopted:

Resolved, That while epidemic cholera may be excluded from this country by thoroughly enforced quarantine regulations, yet the best attainable sanitary condition of every locality in the State should be secured, so that in the event of Asiatic cholera effecting an entrance, notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances, and the Secretary is, therefore, hereby authorized to take such action as in his judgment will most promptly obtain a thorough sanitary organization of the State, and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

It is entirely possible that we may escape a visitation of Asiatic cholera this year, although there is yet plenty of time for the disease to reach our shores before the cold weather. But even if there were no danger from this source, it should be remembered that everything which is done in the direction

of sanitary improvement benefits the general health, reduces the amount of sickness, and lessens the death-rate. An obvious duty, therefore, rests at all times, but more urgently at present, upon those charged with the administration of public-health affairs to take such steps as may be necessary to remedy any defects in the existing sanitary status.

To this end a general inspection of the entire territory under your jurisdiction should be made forthwith; and all nuisances, or other conditions injurious to the public health, which may be disclosed by such inspection, should be promptly abated. Especial attention should be paid to—

First—The condition of the water-supply.

Second—The disposition of night-soil, garbage and sewage.

Third—The cleansing of streets, alleys, and other public places.

Fourth—The supervision of food-supplies, and of market-places, slaughter-houses and similar establishments.

Fifth—The general sanitation of every house and its surroundings.

1. Water is one of the commonest mediums through which cholera spreads; but, aside from this, typhoid and malarial fevers, diarrhea, dysentery and other diseases, are caused by impure and polluted water. Hence the necessity of protecting the supply from contamination by surface-washings and drainage of filthy soil or premises, or of water from manufacturing establishments, or by seepage through the ground from privy-vaults, cess-pools, etc.

2. Night-soil, garbage, sewage, and all other forms of decomposing organic matter, are highly prejudicial to health, and their foul odors are indications of danger. The various methods for their proper disposal, so as to render them harmless, are well understood, and should be enforced according to the varying conditions of each locality.

3. Clean streets and alleys, and gutters properly drained and kept free from unsightly and filthy accumulations, are of even

greater importance during the heat of summer than at other times. The healthy condition of the atmosphere of a locality largely depends upon the condition of its thoroughfares.

4. The rapid decomposition of most articles of food during hot weather—the tainting, souring, wilting or rotting processes—and the derangements of the stomach and bowels caused by the use of such food, indicate the necessity for special supervision at this time of all food-supplies, and of the places where they are prepared, stored, or disposed of.

5. The foundation of healthy living is, obviously, the individual home and its surroundings. Houses, cellars, yards and out-buildings should be carefully inspected, and all accumulations of garbage, refuse and filth of every description should be removed, or, where this is not practicable, they should be rendered harmless by appropriate treatment. No house or premises can be healthy without proper drainage. If this cannot be secured by sewers or underground drains, then recourse should be had to surface drains, so as to prevent the possibility of stagnant water under the dwelling or its vicinity. Cellars should be dry, clean and well ventilated, so that they may not generate foul air to be drawn up through the house.

It is desired that this work of inspection, and remedying of evils and defects, be begun at the earliest practicable moment; and a preliminary report be made to this office, covering, in a general way, the existing sanitary condition, and the measures adopted and enforced for its improvement.

In connection with this report, information concerning your public-health provisions is also desired. I have, therefore, to request the names and addresses of your health commissioner, health officer, members of the board of health, or kindred officials; and copies of your health laws, ordinances, rules and regulations, etc.

With this information from every part of the State, the Board will be able to secure concert of action, and to direct,

intelligently and efficiently, whatever measures may be found necessary should, unfortunately, any emergency arise requiring such action.

Forms of health ordinances, adapted to the various organizations of villages, towns and cities in the State, are now being prepared, and copies of the same will be furnished on application.

Confidently anticipating your early attention to this matter, in the interest of your community, I am,

Very respectfully,

JOHN H. RAUCH, *Secretary.*

SELECTIONS.

GUN-SHOT WOUNDS OF THE SMALL INTESTINES. *By* CHARLES T. PARKES, M. D., *Professor of Anatomy in Rush Medical College, Chicago, Ill.*

[*Address of the Chairman of the Section on Surgery and Anatomy.*]

[*Continued from July Number.*]

Eleventh. Is not the moral effect of the assurance to the patient, that he will be placed in a condition most likely to lead to his recovery, a good substitute for the mental depression accompanying the general and popular conviction that these wounds mean certain death?

EXPERIMENTS ON GUN-SHOT WOUNDS OF THE ABDOMINAL CAVITY.

[*Appended to Dr. Parkes' Address.*]

EXPERIMENT NO. 1.

Wednesday, November 14, 1883.—Long, lean and lank setter; about 30 lbs.; in rather poor condition. Etherized with common ether and shot through abdomen with a No. 32 cal. ball, which passed directly through anterior wall to the innominate bones. Upon opening abdomen found ileum perforated about the middle and at the ileo-cæcal valve, and slightly grazed at another point. Extravasation of intestinal contents at each perforation. Some entozoa. The two perforated regions were resected and continuity of ileum re-established by Lembert's intestinal stitch. The grazed portion was closed by continued suture. Intestines washed with a feeble solution of carbolic acid, and returned to abdomen; and the external wound closed by two sets of sutures, one set through muscular walls, including peritoneum, and the other uniting the skin.

Drainage tube inserted, and wound dressed antiseptically with gauze, cotton, etc.

Entire operation lasted about one hour, and conducted antiseptically, abdomen being shaved, washed and irrigated with carbolized solution, etc. The animal waked considerably shocked. Gave rectal injection of alcohol and water (1-2 1-2), about 3 drachms, and in half an hour gave 10 drops of laudanum. The dog seemed very bright. At 6 P. M. was considerably weakened; respiration very rapid, with much febrile excitement. About three-quarters of a pint of warm milk per stomach-tube, twelve drops of laudanum, and about a quarter-grain of morphia hypodermically. Tied him under register well bedded in a large comforter, and covered him with a coat.

Thursday, November 15.—Dog died between midnight and morning. Post-mortem. Abdomen filled with bloody serum and intestines inflamed and badly smelling; kidneys a bright blue, and rectum filled with hardened fæces. Dog had vomited during the night a quantity of hair and some pieces of cartilage, etc. Died of shock. Wounds of intestine well agglutinated.

EXPERIMENT No. 2.

Friday, November 16.—The ball (32) severed the aorta.

EXPERIMENT No. 3.

Saturday, November 17.—(Ball 32 cal.) Dog etherized, shaved and shot very near abdominal margin. Upon opening abdomen (incision 3½ inch), but one loop of gut was found perforated. This was excised, and the continuity of intestine restored by eighteen individual silk stitches, which brought serous surface to serous surface, the greatest difficulty being encountered at the mesenteric attachment to the gut on account of the fat which lay between the two layers of peritonæum and adherent to the gut itself. Extravasation of intestinal contents. Tape worm.

Wound closed with heavy silk and dressed antiseptically. Gave 15 gtt. laudanum at night.

November 18.—Animal seems bright, but disposed to remain quiet, drinks plenty of water and urinates freely, Respiration hurried and febrile action high.

November 19.—Seemed very well, and partook of some milk during morning, but began vomiting in the P. M. a sour, watery and greenish fluid. Gave per rectum about ¼ grain morphiæ sulphas at night, and left him sleeping comfortably.

November 20.—Seemed quite lively and comfortable, the dressings having been removed the day before, and a large body bandage applied. About 11 A. M. seemed rather tired, and vomited large quantities of the same sour fluid as before; would not eat meat or drink milk, but drank water freely. Gave about ⅜ grain morphiæ sulphas hypodermically, and during the afternoon he seemed extremely sleepy and much disposed to lie down flat, but is nervous and easily alarmed by sudden noises, etc., etc. This condition lasted all day, and suppose it is the effect of the morphia.

November 21.—Died during night. Post-mortem showed a separation of the resection, which had evidently first torn out at the mesenteric attachment. Extensive peritonitis, intestines being agglutinated together and abdomen filled with fluid blood and fæces.

EXPERIMENT NO. 4.

November 23.—(Ball cal. 32.) Very large dog, weight about seventy-five pounds. Upon opening abdomen found a section of intestine for about six inches perforated in several places, the ball apparently having skipped along inside the gut; at another place the free edge was shot off and other portions of ileum grazed three times. The middle section was resected entirely, and closed perfectly; the shot edge was closed by trimming edge or side of the tube of intestine by a "V"-shaped

cut towards the mesenteric attachment, and that also was closed fairly well. This was close to the left end of the pancreas. Each opening showed extrusion of contents. Many worms.

The operation lasted two hours, abdominal wound closed by two sets of sutures, one set through the muscular walls, the other bringing the skin in contact. Wound was covered with cotton, and bandage applied. Gave 20 gtt. deod. tinct. opium and a little water. Seemed to be doing well all P. M., and at night at six o'clock gave about 20 gtt. more of the opium, and left some water where he could get it.

November 24.—Dog still alive and very thirsty, but vomits the water soon after drinking; gave another dose of opium at night.

November 25.—Bandages have not been changed.

November 26.—Changed dressings; dog seems bright. Gave pint of milk; also opium, which he drank readily, but soon vomited. Gave more milk about noon, which he retained. In the afternoon he seemed much weaker. Gave deod. tincture of opium gtt. 20 at night.

Still lives, but is not strong. Lies in any position in which placed, and seems quite prostrated. Opium as before seems to revive him; he refuses milk, but drinks freely of water, which the stomach promptly rejects. In the afternoon, being no better, removed dressings, and although wound was quite healed made an opening for medium-sized drainage-tube, and let out about a quart of bloody serum; re-dressed the wound after injecting a weak carbolized solution of warm water into abdomen through tube. Gave a rectal injection of alcohol and water (1-2 1-2) warm and gtt. 20 of opium. Is getting very poor, but respiration is regular; pulse very weak and rapid.

November 28.—Gave enema of soapy water very weak. Washed out wound and inserted short drainage-tube and fresh bandages. About eleven o'clock had a passage from bowels of a large quantity of black, tarry, and badly smelling fæces, result of injection per rectum. At 2 P. M. was very weak. Gave enema of whisky and milk, warm, about 2 oz., and made a stew of small bits of beef and milk in whisky, which he ate greedily. Gave milk and whisky per rectum every three hours, also Valentine's extract of meat.

November 29.—Seems much stronger; had a semi-liquid passage from bowels. Gave enema every four hours of Valentine's extract, milk and whisky; and also fed pieces of raw meat in milk.

November 30.—Steady improvement; another passage which evidently came from above seat of operation. Fed him on raw steak, and gave whisky per rectum every four hours. Sutures through integument have ulcerated their way out; were removed and dog allowed to lick his wound, as he promptly tears off all bandages.

December 1.—Feeding as before, with steady improvement.

December 2.—Another passage from bowels during night Gave meat, about one-half pound every three hours, which he eats greedily; marked improvement daily in strength and appearance.

December 3.—Same improvement.

December 4.—Sent dog down stairs in basement.

December 10.—Alive and apparently in perfect health. External wound closed completely.

December 11.—Seems sick; refuses to eat; howls at night.

December 12.—Has marked symptoms of tetanus, and is in a state of rigidity with episthotonos.

December 13.—Died, and post-mortem showed an obstruction of intestine by a large mass of meat or a collection of various substances of a gritty consistency which completely obstructed and occluded bowels for some distance. The bowel was opened above this, and abdominal cavity filled with intestinal contents, and organs all adhered, as result of peritonitis; resection wound quite strongly united. Dog died from careless feeding and obstruction following adhesion of knuckle of intestine to omental stump.

EXPERIMENT No. 5.

Monday, November 26.—(Ball cal. 32.) Medium-sized, well-conditioned and sturdy dog. Shot passed through a six-inch piece of intestine, making several perforations. Much fæcal matter free in abdomen, some opposite each opening. Many tapeworms.

November 27.—Made a resection of but one piece six inches in length, including both wounds. In this instance the larger silk sutures were used. After the continuity of the intestine was restored there was a great deal of bleeding from the interior of the abdomen, the origin of which could not find, but allowing the air to reach into all parts of the abdominal cavity, it ceased after considerable loss of blood. A portion of the omentum being filled with blood, it was ligated and removed. In closing abdominal wound was obliged to tear away a certain amount of fat which was closely adherent to interior wall of abdomen, along the line of the wound, in order to introduce sutures so they would not include the fatty mass. Introduced two drainage-tubes, and applied large pad of cotton. Gave some opium, about

gtt. 15. P. M. dog seemed considerably shocked, but was quite thirsty. At night gave more opium.

November 17.—Cotton was soaked with fluid from drain-tubes. Removed dressings, and, upon getting him upon his feet, a small quantity of fluid escaped. In the evening washed out the abdomen with a warm solution of carbolic acid, about $\frac{1}{2}$, and applied dressing of gauze. During the day he vomited considerable milk and water which he had drank, and was evidently very weak. Gave about gtt. 20 of opium at night. Died at 8 A. M. on November 28. Post-mortem showed that sutures had parted at mesenteric edge, and death was from peritonitis. Mortification of edges of resection.

EXPERIMENT No. 6.

December 5.—(Ball cal. 32.) Died of hæmorrhage, after being shot, from wound of renal arteries, the ball perforating one kidney. Several perforations of the small intestines, all of them showing extrusion of contents. One large, round worm free in cavity.

EXPERIMENT No. 7.

December 7.—Died under ether.

EXPERIMENT No. 8.

December 7.—(Ball cal. No. 32). Ball opened one of the mesenteric arteries, and after resecting three pieces of intestine, and closing wound nicely (every perforation showed fæcal matter, worms, etc.); she died in less than nine hours from the shock. Great loss of blood; died of loss.

EXPERIMENT No. 9.

December 10.—(Ball cal. 32.) Gave morphine hypodermically at 9 A. M. Medium-sized female dog. Anæsthe-

tized at 9 A. M., and shot at 9.30, first shot simply going through abdominal walls; second shot higher up and perforating spleen. Operation began at 10.15. Found abdomen full of blood, fæcal matter, and some worms. Removed spleen and large mass of omentum; ligated and removed one piece; resected about three inches in length; perforated in two places. Much hæmorrhage; operation concluded at twelve. Gave opium and whisky; much shocked. Died.

EXPERIMENT NO. 10.

A well-nourished bull-dog (female), about twenty-five pounds in weight. Was anæsthetized about 9.15 A. M., and then shaved over the abdomen. Was shot at 9.45 by a 32-100 calibre revolver just posterior to the umbilicus, the bullet entering on the right side about three inches from the median line, the point of exit being in the corresponding situation on the opposite side. On opening abdomen found animal pregnant. There was one wound through the right cornu of the uterus, rupturing the membranes of one fœtal dog, and allowing the escape of the amniotic fluid into the peritoneal cavity. One of the smaller mesenteric arterial branches was cut, and the small intestine perforated in one place. The abdomen contained considerable blood on opening immediately after the shot, and there was slight extravasation of fæcal matter from the gut at openings. The vagina and uterine ligaments were ligated by single carbolized silk ligatures, and the large gravid uterus removed. The hæmorrhage in the mesentery having been checked, the wound in the intestine was resected, about two inches being removed. The free ends were united with the interrupted silk ligature. The peritoneal cavity was sponged

out and washed with slightly carbolized warm water. The external wound was united with about ten silk ligatures, and dressed with iodoform and gauze, the whole being covered with oakum and bandaged. About half a grain of morphia was administered hypodermically; and at twelve the dog was allowed to come from the influence of ether. She showed marked symptoms of shock, but rallied in the afternoon. She died in the night. Post-mortem revealed hæmorrhage from the uterine stumps, and some peritonitis commencing.

EXPERIMENT NO. 11.

A full-grown, healthy-appearing dog. Etherized at 9.30 A. M. Abdomen shaved and cleansed. Was shot at 10 A. M., still under the influence of ether, the bullet from a 32 S. & W. revolver passing transversely through the lower part of the abdomen. Was placed on table and kept partially anæsthetized until 10.45. The animal then presented signs of extreme loss of blood, feeble respiration and heart's action, cold extremities, pallid gums, etc. Abdomen was opened by large crucial incision and found to be filled with blood. Bleeding was ascertained to come from a divided mesenteric artery, and was readily checked by ligature. Clots were turned out, and two wounds of small intestine found. But slight extravasation of contents of bowel into the cavity, still some matter and worms found at openings. The intestine was resected at the site of each wound, about three inches being removed in each place. The cut ends of each were then united by about twelve interrupted silk sutures, so placed as to bring peritoneal surfaces in apposition. Intestines were then returned to their place, the cavity sponged

out, and the external wound closed tightly with silk sutures. This was finished at twelve o'clock, the dog appearing moribund at its close, and remaining in a condition of collapse for about three hours. Reaction then took place, and he was able to stand and walk about. Second day, took some milk, which was vomited at once. This was repeated at intervals during second and third days. Dressings were changed on third day. No discharge from wound. On fourth day vomiting was increased, and was fæcal in character. Dog too weak to stand. Dressings changed again and wound found to be discharging purulent fluid. Died at 4 P. M. on fourth day. Post-mortem showed sero-purulent exudation in abdominal cavity, intestines glued together by adhesive lymph, wounds uniting well, and occlusion of the bowel in the neighborhood of one of them, from its having been sharply folded upon itself and bound in the position by the inflammatory exudate.

EXPERIMENT NO. 12.

December 27, 1883.—The bullet, 32 cal., entered the abdomen on a line corresponding to the junction of the anterior and lateral surfaces of the abdomen, just in front of the hind leg, its point of exit on the other side being on the same line a little above the umbilicus.

On opening the abdomen it was found that the lower part of the jejunum was cut in two places within two inches of each other, and that there was considerable blood in the peritoneal cavity from these cut surfaces, there being no mesenteric vessels cut; also fæces and worms.

Both wounds were included in the parts excised, and the cut ends of the intestines were fastened together by three

sutures, and then stitched to the abdominal parieties, thus forming an artificial anus.

Considerable shock was experienced, and owing to a desire to hasten the operation, the peritoneal cavity was not as carefully sponged as it should have been.

The dressing consisted of iodoform, protective and oakum. Of tinct. opii. deod. gtt. 20 were given by the mouth. The operation lasted two hours. On the following day he took a little nourishment; there was no tenderness, but some pus was squeezed from the point of exit of the bullet, the dog lying on that side.

Next day about one-half ounce of pus was forced from the point of exit of the bullet, the dog lying on that side, and by turning him on to the other side an equal amount was obtained from the point of entrance, but there was no suppuration from the wounds themselves.

He took a little nourishment and seemed to be in good condition, respiration being normal and pulse regular. He had a free urination from the bladder, and soft stools were passed from the artificial opening. He died during the night. Post-mortem revealed a large amount of septic material in the peritoneal cavity.

EXPERIMENT NO. 13.

Saturday, December 29.—(Ball calibre 32.) Medium-sized, middle-aged female dog. Gave with the anæsthetic about 3/8 grain of morphia hypodermically after shot. Abdomen found full of blood; seat of hæmorrhage found at one of the point of perforation, of which there were two; from these issued fæcal matter, gas and worms; a medium-sized mesenteric artery having been shot off. All the intestines were drawn out of abdomen for examination, and it was found necessary to resect two

portions which were a considerable distance apart, both places closing neatly and perfectly. Abdomen washed out and external wound closed by one set of sutures and a large pad of oakum laid over and held in place by roller first, and over all a many-tailed bandage. Gave 25 gtt. laudanum.

December 30.—Dog got loose during night and was running around very briskly; room very cold and disagreeable. (On the afternoon of the day of operation some person had opened the doors and windows and exposed the animal to a strong, cold draft for about two and one-half hours.) In the evening gave hypodermically morphine, when she vomited for first time and seemed very weak.

December 31.—Seemed lively and well all day; gave milk, which she would drink but could not retain. About noon gave an enema of Valentine's extract, and in the evening left a pan of milk.

January 1, 1884.—She seems as well as ever, but the floor of the room was profusely decorated with vomit. The milk was all gone. Gave an equivalent of an ounce of whisky, of alcohol and water per rectum, and left a supply of water, as she seemed very thirsty. Bandages changed for the first time since the operation. There had been but little discharge and the wound was in good condition. Applied a large pad of oakum and a wide roller as before.

January 2.—Seems quite exhausted. Gave alcohol and water (1-2 1-2) per rectum about four or five times a day in quantities of about 1 ounce; has a diarrhœa and vomits.

January 3.—Diarrhœa continues, but no vomiting. Has some appetite, and gave raw meat (steak) chopped fine, every two or three hours; also fresh milk, which she drinks readily.

January 4.—Seems quite well, and hungry; fed regularly and removed all dressings; wound in good condition. Removed

all stitches and did not apply dressing again. Appetite good.

January 5.—Dog is seemingly well; has a voracious appetite. Much wasted in flesh, but appears strong.

January 6, 7, 8.—Fed her upon milk; also meat chopped fine and raw.

January 9.—She seemed well enough to be sent down cellar, where she continues gaining strength and flesh.

January 15.—Is perfectly well. Recovery.

EXPERIMENT NO. 14.

January 9, 1884.—This dog was allowed some milk a short time previous to the operation, hence his stomach was distended.

The first bullet (32 calibre) grazed the abdomen walls, not entering the peritoneal cavity.

The second entered on a line corresponding to the junction of the anterior and lateral surfaces of the abdomen, a short distance in front of the hind leg, coming out a little nearer the median line, and two inches nearer the front leg.

On opening the abdomen it was found there was some hæmorrhage, mucus and particles of food in its cavity and on surface of stomach, and that the lower part of the stomach was wounded, the point of exit being two inches from the point of entrance, passing through the whole thickness of the stomach. There was no wound of the gut. The peritoneal surfaces were drawn together with cat-gut, by inverting the edges and using the continued suture.

Great care was taken in the *toilette du peritoine*. Immediately after closing the external wound he vomited half a pint of blood, mucus and milk. Time of operation was one hour and a half. Then he was given tincture of opii deod. gtts. xx.

The wound was dressed with iodoform, protective and oakum.

On the tenth was given nothing except a little water. On the eleventh he was given a little milk, which caused some dis-

turbance. On the sixteenth the stitches were removed and no dressing applied, there being but slight discharge from the wound made by the incision and none from the bullet wounds. Recovered.

EXPERIMENT NO. 15.

Small dog, female, was anæsthetized and shot at 10:30 A. M. (S. & W. revolver, 32 calibre.) First wound passed through abdominal muscles only. Shot again immediately, bullet this time passing transversely through middle of abdomen. Opening made at once by linear incision. But little blood in cavity. All bleeding stopped upon exposure of intestines to air. Five wounds of small intestine found, all showing extravasation of contents. Two resections of five inches each were made to include all wounds. Cut ends were united by a continued catgut suture in each place. Intestines returned and abdominal incision united by silk sutures, after thoroughly washing out cavity by 2 per cent. solution of carbolic acid. The operation was finished at 10:30 A. M. Dog was laid in a warm place, apparently suffering but little from shock. External wound dressed with iodoform, covered by protective carbolized gauze, tow and a bandage. Animal died in about twenty hours. Was not given any food or medicine in that time. Post-mortem showed some small blood-clots about the wounds in the intestine. No serum or other fluids in cavity, and no signs of peritonitis. Death from shock.

EXPERIMENT NO. 16.

A dog of uncertain breed, about twenty pounds in weight, was shaved over the abdomen and anæsthetized at 10 A. M. Was shot in the abdomen in front of umbilicus, the bullet entering on the right side and coming out on the same side about two inches nearer the median line, not entering the abdominal cavity or wounding the peritonæum. Was shot

again, the bullet entering on the right side, external and posterior to the first, and coming out on the opposite side, about two inches from median line. The calibre of the revolver was 32-100. Upon opening the abdominal cavity the peritonæum was found to be plowed across between the wounds of entrance and exit, and the spleen to be slightly nicked, the bullet having skirted the abdominal walls. The only hæmorrhage was from the external wounds and the spleen and track of bullet. The spleen was removed, its peritoneal connections being ligated by five silk ligatures. The small intestine was resected, about four inches being removed. The abdominal cavity was washed with warm carbolized water. The external wound was sewed up by about ten sutures. The dog came from under the influence of ether at 11:30 A. M. The wound was dressed externally with iodoform and oakum, and fifteen drops of deodorized tr. of opium administered by the mouth. A curious phenomenon was observed upon cutting out the spleen. The stomach and intestine became distended enormously with gas, extruding from the abdominal cavity and covering a large area of the operating-table. They were with difficulty returned with steady pressure. The dog died in the night from shock and hæmorrhages from splenic stumps.

EXPERIMENT NO. 17.

January 23.—(Ball cal. 32.) Good-sized coach dog. Bullet passed through abdominal walls without wounding intestines and just entering the peritoneal cavity, as was found after opening abdomen, the point of entrance and exit being on either side of the middle line and five inches apart. Removed the major portion of the greater omentum and also resected about six inches of the ileum and closed the wound by five sutures, the external wound being but two inches long.

January 24.—Seems inclined to be quiet all day; had de-

fecated during the night and urinated very little; drinks but little water, and does not vomit it. Is by nature a very frisky dog, and do not think his extreme quiet very favorable.

January 25.—Seems quiet; no bloating of abdomen; removed bandages; re-applied dressings. Refused milk all day; also water.

January 26.—Gave small quantity of milk in the afternoon; re-applied the dressings which had been removed the day before; found the bullet wounds much puffed up, and that the stitches had slipped in two places, leaving a hole opening into abdomen large enough to admit little finger. The portion of intestine viewed through opening in external wound looked red and inflamed, but not badly so; little running from the wound. Filled it with iodoform and applied pad of oakum.

January 27.—Gave about one-half pound of meat and a quart of milk; seemed to be ready to get well.

January 28.—Fed meat and milk during day, and he seems to be rapidly getting well.

January 29.—Wound gaping, but discharged him to the cellar. Recovered.

EXPERIMENT NO. 18.

January 25, 1884.—This dog, a black and tan bitch, having been shaved the day before, was anæsthetized and shot.

The bullet, 32 calibre, passed directly through the abdomen about its middle, piercing the gravid uterus in two places, and cutting the gut longitudinally. No large vessels were cut. The uterine attachments were ligated *en masse* and the uterus removed. Contents of bowel found at site of wound in intestine.

During the time that an excision of the gut was being made, a profuse hæmorrhage occurred from the uterine stumps, before they could again be ligated by passing a suture through and ligating one-half at a time, the animal was almost exhausted from hæmorrhage.

The excision of the gut was then completed, and the cut ends stitched together with silk. The peritoneal cavity was then thoroughly washed out with slightly carbolized warm water, and the external wound closed. The dressing consisted of iodoform, gauze and oakum.

Of tinct. opii. deod., gtt. xx were given. Death occurred within ten hours after the operation, from effects of the hæmorrhage.

EXPERIMENT NO. 19.

Dog was full-grown and apparently healthy. When the abdomen was exposed by shaving, two small abscesses, each the size of a filbert, superficially seated and non-inflammatory, were discovered. They were not disturbed. The animal was anæsthetized at 8:30 A. M., and at once shot through the middle of abdomen with a 44 calibre revolver. The dog was placed upon the table, and a linear incision of about three inches made in the median line. It was there found that the ball had glanced upon the abdominal muscles, and instead of going through the mass of small intestines, had been deflected so that it just entered the peritoneal cavity beneath the linea alba, traversed the cavity for about an inch, producing a contused wound of a fold of intestines, and then entered the abdominal parietes to make its exit opposite the wound of entrance, about two inches from the linea alba. Only a small amount of blood was found in cavity. Although none of the intestines were wounded, a resection of about two inches from the middle of the ileum was made. The divided ends were united by about a dozen interrupted silk sutures. The cavity was washed thoroughly with a 1 per cent. sol. of carbolic acid, the intestines returned, and stitches were being placed in external wound, when the abdominal cavity was found to be filling with blood. Source of the hæmorrhage was found to be a branch of mesen-

teric artery at the site of the resection, which had commenced to bleed as soon as circulation was restored by warmth of abdomen. A ligature was applied, the intestine returned and the cavity again thoroughly washed out. The external wound was now closed by silk sutures, the wound dusted with iodoform, and dressed by applying a few thicknesses of carb. gauze, covering this with a mass of tow and a bandage over all. Animal appeared to suffer but little from shock. On morning of second day was given ¼ grain morphia with 1-100th grain atropia by the mouth.

On the third day appeared greatly prostrated, vomited at intervals, and a muco-purulent discharge was noticed coming from nostrils and eyes. Vomiting ceased on fourth day. Prostration and evidence of fever kept up to the morning of fifth day, when improvement began. Discharge from nostrils continued about ten days. On the fourth day a small quantity of milk was taken and retained. Loose discharge from bowels on fifth day slightly colored with blood. A rectal injection of alcohol; water was given on the sixth day. Dressings changed for the first time on sixth day. Wound appeared healthy and united in its deeper portions. Some pus from superficial part of wound from this time on, the dog ate milk regularly, and had regular and normal passages from bowels. On ninth day sutures were removed from external wound, which had entirely closed. On the thirteenth day, February 10, 1884, dog is apparently perfectly well; has been eating regularly of raw beef, and has begun to gain in flesh. On the evening of thirteenth day dog was well. Recovery.

EXPERIMENT NO. 20.

February 2.—(Ball cal. 32.) Died from ether before any incision was made.

EXPERIMENT NO. 21.

A strong black dog, about 20 lbs., was shaved over the ab-

domen and then etherized at 9.15 A. M. Was shot with a 38-100 calibre revolver through the abdomen about opposite the umbilicus, and five inches to the right of the median line, the point of exit being in a corresponding situation on the opposite side. Upon opening the abdominal cavity such a large amount of blood was found that it was necessary to enlarge the incision by a cross cut. A large mesenteric artery was found to be cut and was ligated. Another smaller one was treated in the same way. There were two wounds in the small intestine close together, about six inches intervening between them. Extravasation of contents from both. One was perforating and the other nicking the gut on the mesenteric side. Eight inches were removed, and the free extremities of the intestine united by interrupted silk sutures. There were three other wounds nicking the intestine which were sewed in the same manner without resection. The end of the cæcum, which is peculiarly shaped in dogs, was shot off. Stained mucus and some shreds at the opening. This was sewed, turning the cut end in. The spleen was cut in one place, which was left with one deeply-planted suture. A large fold of omentum was ligatured and removed. The abdomen was thoroughly washed with carbolized water, and the external wound united with about fifteen sutures. It was then then dressed with iodoform and oakum, ½ ounce of alcohol and 15 gtt. of deodorized tincture of opium were administered per rectum, and at 12.15 the dog was allowed to come from the influence of ether. The same amount of alcohol and opium were administered as before at 6 P. M. The dog died during the night. Post-mortem revealed no evidence of inflammation, and some slight bleeding from the spleen. The sutures in the intestine were in good condition. The piece of gut, about eight inches long, supplied by the mesenteric artery, which was cut by the bullet, was found to be completely mortified.

EXPERIMENT No. 22.

February 12, 1884.—(Ball cal. 32.) Brindle bull dog. No attempt to sew up the holes in the intestines, of which there were about twenty. Died the day following. "Tilley's anæsthetizer." Every opening showed evidence of extrusion of contents.

EXPERIMENT No. 23.

February 28, 1884.—Tilley's anæsthetizer. Died before operation from effects of ether.

EXPERIMENT No. 24.

February 28, 1884.—(Ball cal. 44.) A short, strong Spitz dog. Bullet wounds of entrance and exit 4 in. apart. Intestine perforated in four places and abraded in one spot. Intestinal worms free in abdomen. Tape worms protruding from perforations.

Extravasation of contents of the bowel. No arteries divided by bullet. Resected one piece, (including three perforations) 12 in. length. Removed a V-shaped piece including the fourth perforation, and inverted the serous surfaces by interrupted sutures, the same as in complete section. The apex of the V (pointed to the attached border of the bowel) controlled the oozing from the abraded spot by small suture passed across mesenteric side of abrasion, the abrasion being the size of a copper cent, and on the side of intestine. Washed the intestines and abdomen cavity as clean as possible by stream of weak carbolized and pretty warm water from the irrigator; closed abdomen wound by five deeply-placed sutures about ⅓ inch apart; gave hypodermic injection of ¼ grain of morphia. Shock and little loss of blood. Omentum also removed.

February 29.—In morning seemed very lively and bright; gave some water, which was immediately rejected by stomach. During morning vomited foul-smelling fluid and two large

chunks of meat. About 10 A. M. gave hypodermic injection of ½ grain morphia; in very few minutes he laid down and began to whine as though in pain, and threw up large quantity of offensively-smelling fluid. Died about 3 P. M.

Post-mortem.—Abdomen showed evidence of intestinal extravasation, all organs being bound together by peritoneal inflammation; extravasation of blood beneath peritoneal covering of intestines, and small clots adherent all along the length of ileum. The stumps of ligated mesentery and omentum were black. The seat of the operation showed adhesion of the serous surfaces, and water could be forced through the excised piece which was taken out by a cut six in. to each side of the stitches, without any leaking at seat of operation. The spot of abrasion was swollen and blue, and there had been a little hæmorrhage from it. The intestines generally were contracted, glued together, and pressed into prismoidal and other shapes. Stomach empty.

EXPERIMENT No. 25.

February 28, 1884.—(Ball cal. 44.) "Tasso."

Bullet under skin opposite to point of entrance. Intestine riddled in about four places, for which a complete section 20 in. in length was removed and was nicely adjusted; another hole in the ascending colon was closed on each side by the continuous suture; the tip of the spleen being shot off, to arrest hæmorrhage a ligature was passed around proximal side of wound tight enough for that purpose, but yet not enough to cause death of the spleen tissue beyond ligature. The stumps of ligated mesentery being gathered upon a suture, were united to intestine near or about at the seat of the approximation of the divided ends; omentum removed; gave rectal injection of alcohol and water ½ ½ about. Each opening in bowel had more or less of the contents around it.

February 29.—Seemed very quiet all the morning, and was quite indisposed to move. Towards noon, gave him, about 11 o'clock, about 1 oz. of alcohol and water ½ ½ per rectum and some water to drink, which was at once vomited. Seemed very tired all day and disposed to lie stretched out before the heat of the register, and his breathing was entirely thoracic and by means of the cervical muscles. At 6 P. M. gave hypodermic injection of morph. gr. ⅜, and left water where he could drink.

March 1.—Seemed very weak all day; gave hypodermic injection of morph. ½ gr. twice, the last at night. About noon gave rectal injection of alcohol and water.

March 2.—Still alive, but very cold; listless and indifferent; gave morph. in A. M., and tied him up in blanket. Returned at nine P. M., and poor "Tasso" was in rigor mortis. I think the exposure to cold during the day (Sunday) which was a very wintry day, was in great measure the cause of his death. He refused to drink any milk during the day, and also seemed to have lost his thirst for water.

Post-mortem March 4.—Extensive peritonitis present; no separation of the united intestine to be found at the seat of operation.

EXPERIMENT NO. 26.

March 3.—(44 cal. cartridge.) Large, fat and old bitch. Used Frank Gould's revolver, 44, and upon opening the abdomen, found four large rents in the intestines (every one of which showed extrusion of contents and some worms) at a considerable distance apart, and a very profuse hæmorrhage from the wound of exit, which was not discovered until the resections were made, of which two included the wounds in the gut, which was about shot off, and much bleeding took place before they were found and ligated. The animal was so fat and boggy that it was with the greatest difficulty that

hæmorrhage could be controlled, and the beast was old and presented signs of cataract in both eyes. The bladder was greatly distended, and the structure of the intestines themselves seemed "sleazy," and the sutures tore out with readiness upon slight traction. Cleansed out abdomen as best we could by thorough washing, but a little bleeding was going on when the wound was closed in the abdomen, and the operation given up as a bad job of one-half hour's duration.

March 4.—Found dead.

EXPERIMENT No. 27.

March 4.—(44 cartridge.) Medium-sized dog; died from shock on night of 4th.

EXPERIMENT No. 28.

March 6.—(Ball cal. 22, revolver.) Very small, black and tan dog. Shot him with a 22 cartridge, and had to use three shots before could get a good perforation and but little bleeding. Resected a piece around the bullet-hole of ¾ inches long, cleaned abdomen and closed tightly; gave morph. gr. ¼.

March 7.—Seemed very bright.

March 8.—Gave little milk and morphia in evening.

March 10.—Milk.

March 11.—Sent down cellar to be fed on milk.

March 12, 13.—Very hearty, and eats ravenously of milk and very little meat.

March 14, 15.—Doing nicely. Recovery.

EXPERIMENT No. 29.

March 6.—(Ball cal. 44.) Large, strong dog. Used 44 cartridge. Found the abdomen full of blood; spleen perforated, and intestines wounded in three or four places. From these issued fæces, gas, etc. Removed spleen, omentum, and resected about 12 in. gut, including all the holes but one, which was sewed up by continuous stitch. The animal having

lost nearly all his blood by this time, and as death was sure to ensue, one of the mesenteric arteries was ligated to ascertain results.

March 7.—Found dead in morning.

Post-mortem.—Intestine black, but the animal had evidently not lived long enough to get any positive mortification of ligatured part, or any interesting appearance at all.

EXPERIMENT No. 30.

March 10.—Tilley's Inhaler. Large chandler bitch. Killed by ether.

EXPERIMENT No. 31.

March 10.—Tilley's Inhaler. Large Hastman dog. Killed by ether.

EXPERIMENT No. 32.

March 10.—(Ball cal. 22, rifle.) Medium-sized bitch. Found three mesenteric arteries severed, and intestines riddled in many places and far apart. Perforations showed fæcal matter and tapeworms. Stopped bleeding and returned intestines without closing the perforations, and closed abdomen. No dressing but iodoform (C. T. P.) Spleen also removed, being perforated.

March 11.—Still alive, and sent down cellar.

March 13, A. M.—No better.

March 14, 15, A. M.—Vomiting, and refused food.

March 18.—Dead. Septic peritonitis. Pockets of fæces.

EXPERIMENT No. 33.

March 10.—Small dog (yellow). Shot with 22 cal. rifle. Three perforations of small intestine, showing fæcal matter. Removed a 4-in. piece in two places, and brought ends together very closely; stitched mesenteric stumps to attached border of intestine. Removed omentum, tying tightly, and also putting in three side stitches connecting sides of stumps on each side of ligation with one another.

March 11.—Alive, but feverish and vomiting.

March 12.— Died. Separation at seat of operation, and stumps mortified. See specimen. Fæcal extravasation.

EXPERIMENT No. 34.

March 12.—(Ball cal. 22 rifle.) Old, mangy bitch. Died under ether. Tilley's Inhaler. Perforation showed extravasation of contents, fæcal matter and worms.

EXPERIMENT No. 35.

March 12.—Medium-sized, short-haired, yellow cur (white nose). Shot with 22-ball rifle. Upon opening the abdomen, found blood flowing from a rent in the side of spleen. This organ was three times the normal size, but no holes in the intestines anywhere, and no hole could be found in the abdominal wall on either side. The bullet lay next the abdominal muscles, and was cut out from the wound of entrance. Free bleeding from the laceration in the spleen, which was controlled by a continued suture. Resected six inches of intestine and closed abdomen. Also omentum removed. Iodoform and oakum dressing; gave morphia.

March 13.—¼ gr. morphia A. M.; very weak P. M.

March 14.—Morph. A. M.; very weak P. M. Temperature 102.

March 15.—Re-opened, but found intestine in solid mass and filled with badly-smelling fluid. Washed out as best I could and reclosed. Seat of operation showed mortification on one side, and stumps mesentery also were black and soft.

March 16.—Still alive. Morphia gr. ¼.

March 19.—Dead. Found intestinal worms in abdominal cavity.

EXPERIMENT No. 36.

March 12.—Short, black, stumpy and very fat dog. Fired four 22-balls at the animal before was sure that any had entered.

Found abdomen full of blood; two perforations five inches apart, and two mesenteric arteries shot off near the gut. Each perforation showed extravasation, fæces and worms. Ligated the arteries; resected one piece, including both holes; sponged out abdominal cavity; removed omentum, also a large quantity of fat which hung to the inner wall of the belly, and closed wound. Iodoform and oakum dressing; gave morphia.

March 13.—Quite bright. Morphia A. M. and P. M.

March 14.—Dead. Post-mortem. Found considerable peritonitis and mortification of the ends of the intestines where they were stitched together. The stumps of mesentery and omentum also showed signs of mortification.

EXPERIMENT No. 37.

March 13.—Medium-sized brindle bitch. No. 22-ball rifle. Resected one piece six inches having two holes; removed omentum very little; hæmorrhage; gas and fæces from wounds; temperature 98 2-5 at close of operation.

March 14.—¼ gr. morphia A. M. Temperature 102 2-5. Morphia P. M.

March 15.—¼ gr. morphia P. M.; temperature 102 2-5.

March 16.—Morphia P. M.; temperature 102.

March 17.—Gave milk and morphia P. M.

March 19, 20.—Gave milk and morphia P. M.; seems well.

April 22.—Perfectly well; recovery.

EXPERIMENT No. 38.

March 13.—Medium-sized yellow dog (with bare spot on tail). No. 22-ball rifle; found one lateral hole which closed by continuous suture, and three holes which were included in one piece which was cut in half by mistake; two arteries gave some bleeding, but were ultimately controlled. Contents of bowel found at each wound. Abdomen closed while yet there was

some oozing from the wound, which ceased when bandages were applied; omentum removed.

March 14.—Very weak and much prostrated. Refused to lie down, and can stand with difficulty on his feet. Gave morphia ⅜ hypodermically, morning and evening.

March 15.—Found dead. Post-mortem. Mortification at seat of operation, and escape of intestinal contents.

EXPERIMENT No. 39.

March 14.—(Ball 22-cal. rifle.) Medium-sized brindle dog (wolf face); found three ragged holes. Resected one piece which included all openings, the piece being seven inches long; closed neatly, the omentum being removed also (many tapeworms and considerable fæcal matter from openings), then washed clean by irrigator. The entire ileum was inspected and sponged off, and returned to abdomen. Spleen also pulled out and inspected; gave morphia and dressings of iodoform and oakum.

March 15.—Some shock; morphia.

March 16.—Morphia P. M. only.

March 17.—Morphia P. M. only.

March 19.—A. M. morphia, stercoraceous vomiting, and seems very sick; P. M. is evidently dying.

March 20.—Vomiting has stopped, and seems much better. Died in the evening. P. M. Septic peritonitis. Post-peritoneal abscesses.

EXPERIMENT No. 40.

March 14, 4.45 P. M.—A young, black, bitch pup; anæsthetized and abdomen opened without shooting; ligated a mesenteric artery and closed wound to be re-opened to-morrow afternoon and resect the part supplied by ligated vessel; gave morphia ⅜.

March 15.—Opened her at 3 P. M. in presence of Prof. Parkes.

Intestine supplied by the ligated artery seemed softer than normal and its mesentery showed inflammatory exudate considerable effusion; closed wound, gave morphia at night.

March 16.—Gave morphia, gr. ¼.

March 17.—Sent down stairs.

March 19.—Seems quite well.

April 22.—Perfectly well. Recovery.

EXPERIMENT No. 41.

March 19.—(Ball 22-cal. rifle.) Medium-sized young bitch (black). Found one abrasion which closed up by continued suture and the intestine in another place was about shot off; fæcal matter scattered all about, worms divided; resected the piece about one inch long; irrigated the abdominal cavity; removed omentum and then found a hole or rather the tip of the spleen shot off which bled some and was controlled by two interrupted sutures; gave morphia, gr. ¼, and applied dressings.

March 18, 19.—Morphia, gr. ½.

March 20.—Seems bright, but very quiet.

April 22.—Quite well. Recovery.

EXPERIMENT No. 42.

March 19.—Twenty-two ball rifle (brindle, white bitch). Found one abraded edge and one hole through free edge of ileum, from which contents issued. Closed one by continued suture and resected across the hole by cutting out a ¾ inch piece. Did not remove omentum. Gave morphia ⅜ and applied dressing.

March 18 and 19.—Morphia. Seems to have a paralysis of left fore-leg since operation and for two days past seems to be salivated.

March 20.—Better.

April 22.—Well. Recovery.

EXPERIMENT No. 43.

March 20.—(Stub tail.) A small half-breed terrier dog. Twenty-two ball rifle. Found two perforations and one abrasion, extravasation of gas and stained mucus and shreds of matter from openings going through mucous coat. Made a resection including all three wounds, the excised piece being six inches long, closed very snugly and connected the ligated mesenteric stumps with the attached border of intestine by a single ligature passing through both stumps (but two sets of vessels having been ligated) and both sides of the mesenteric borders of the united ends of the gut; removed omentum and irrigated abdomen cavity freely with a 1 per cent. of carbolic acid solution. Dressings, oakum and iodoform; gave morphia, ¼. Recovery.

EXPERIMENT No. 44.

March 20.—A young, shaggy, cur dog opened without shooting, and ligated three sets of branches from the superficial mesentery artery, close to the main artery, and also a good-sized anastomatic connection with an adjoining vasa intestini tenuis, which ran parallel with and along the attached border of the bowel. The intestines supplied by the vessels blanched immediately. Closed abdomen; gave morphia, gr. ¼; applied dressings. Recovered.

Died subsequently from ether during examination as to result of above operation six days after it. Found intestine perforated by stick of wood four inches long, rolled in twine. Had removed it, and was about to sew up wound when ether killed him.

EXPERIMENT No. 45.

March 20.—A good-sized spaniel dog (old). Stopped breathing once from ether before shooting. Shot with a rifle twenty-two ball. Found the abdomen full of blood, two arteries hav-

ing been shot off and the ileum perforated in four places; from each contents extruded, two being so near together and the wounds so great as to almost carry away an entire segment of the bowel, necessitating a removal of about twenty inches. Much bleeding, which took about half-an-hour to control, being from the ligated stumps and bullet-wounds; the tissues were very brittle, and so loaded with fat as to make the operation difficult. Died in one half-hour after closing abdomen wound.

PATHOLOGICAL SPECIMENS SHOWN.

1st. Section of ileum made 24 hours after operation; showing the sutures all covered with exudate. Union sufficiently firm to allow distention with water without leaking.

2nd. Sections of intestines made four, six and eight weeks after operation—the animal having fully recovered. The union is firm and solid throughout entire circumference of the bowel. No narrowing of tube, or disposition to formation of a stricture. Two of the specimens show several of the sutures ulcerating into the lumen of the bowel.

3rd. Several specimens showing mortification of distal ends of stumps, and also mortification of applied edges of the bowel from tight sutures and ligatures.

4th. Several specimens showing giving way of sutured bowel ends at the mesenteric junction, allowing extravasation causing fatal inflammation—sutures failed to include the muscular coat.

5th. Specimens showing many varieties of wounds produced by the bullet.

BOOKS AND PAMPHLETS RECEIVED.

Manual of Physiology, a Text Book for Students of Medicine; by Gerald F. Yeo, M. D., F. R. C. S. P. Blakiston, Son & Co., Philadelphia. 1884.

The Theory and Practice of Medicine; by Frederick T. Roberts, M. D., F. R. C. P. Fifth American edition. P. Blakiston, Son & Co., Philadelphia, 1884.

Hooper's Physician's Vade Mecum; vol. ii, being part of Wood's Library of Standard Medical Authors for 1884. To be had of W. T. Keener, Chicago.

Auscultation Percussion and Urinalysis; by C. Henri Leonard. Illustrated Medical Journal Co., Detroit. 1884.

Student's Manual of Electro-Therapeutics; by R. W. Amidon. Putnam's. 1884.

Borderland Psychiatric Records—Brodromal Symptoms of Psychical Impairment; by C. H. Hughes, M. D.

Construction of Hospitals for the Insane; by J. C. Spray, M. D.

The New York State Medical Association Report.

Report of Cases of Ovariotomy; by W. H. Kane King, M. D.

Peroxide of Hydrogen in Suppurative Conjunctivitis; by A. E. Prince, M. D.

Peroxide of Hydrogen in Diphtheria; by R. J. Nunn, M. D.

Medical Annals of Baltimore; by John R. Quinan.

Prospectus of a New Work on Physiology; by W. H. Wriplett, M. D.

Some Recent Theories Regarding the Pathogeny of Sympathetic Ophthalmia; by Samuel Theobold, M. D.

Twenty-Third Annual Report of the Cincinnati Hospital.

Memoria Cientifico—Descriptiva de las aquas Minero—Medicinales de la Favorita de Cabana. Madrid. 1884.

Criminal Responsibility of the Insane; by O. Evarts, M. D.

Annual Address before the Medical Society of the State of California; by Ira E. Oatman, M. D.

Paroxysmal Fever not Malarial; by J. H. Musser, M. D.

Sixth Annual Announcement of the Central College of Physicians and Surgeons. Indianapolis, Ind.

Quarantine and Sanitary Operations of the Board of Health of the State of Louisiana; by Joseph Jones, M. D.